

## **Historic, archived document**

Do not assume content reflects current scientific knowledge, policies, or practices.

96B  
BULLETIN No. 3.—REVISED EDITION.

U. S. DEPARTMENT OF AGRICULTURE.

DIVISION OF PUBLICATIONS.

# HISTORICAL SKETCH

OF THE

U. S. DEPARTMENT OF AGRICULTURE;

ITS OBJECTS AND PRESENT ORGANIZATION.

COMPILED BY

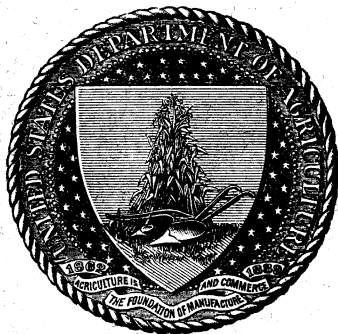
CHARLES H. GREATHOUSE,

*Division of Publications.*

Under direction of

GEO. WM. HILL,

*Chief of Division of Publications.*



WASHINGTON:

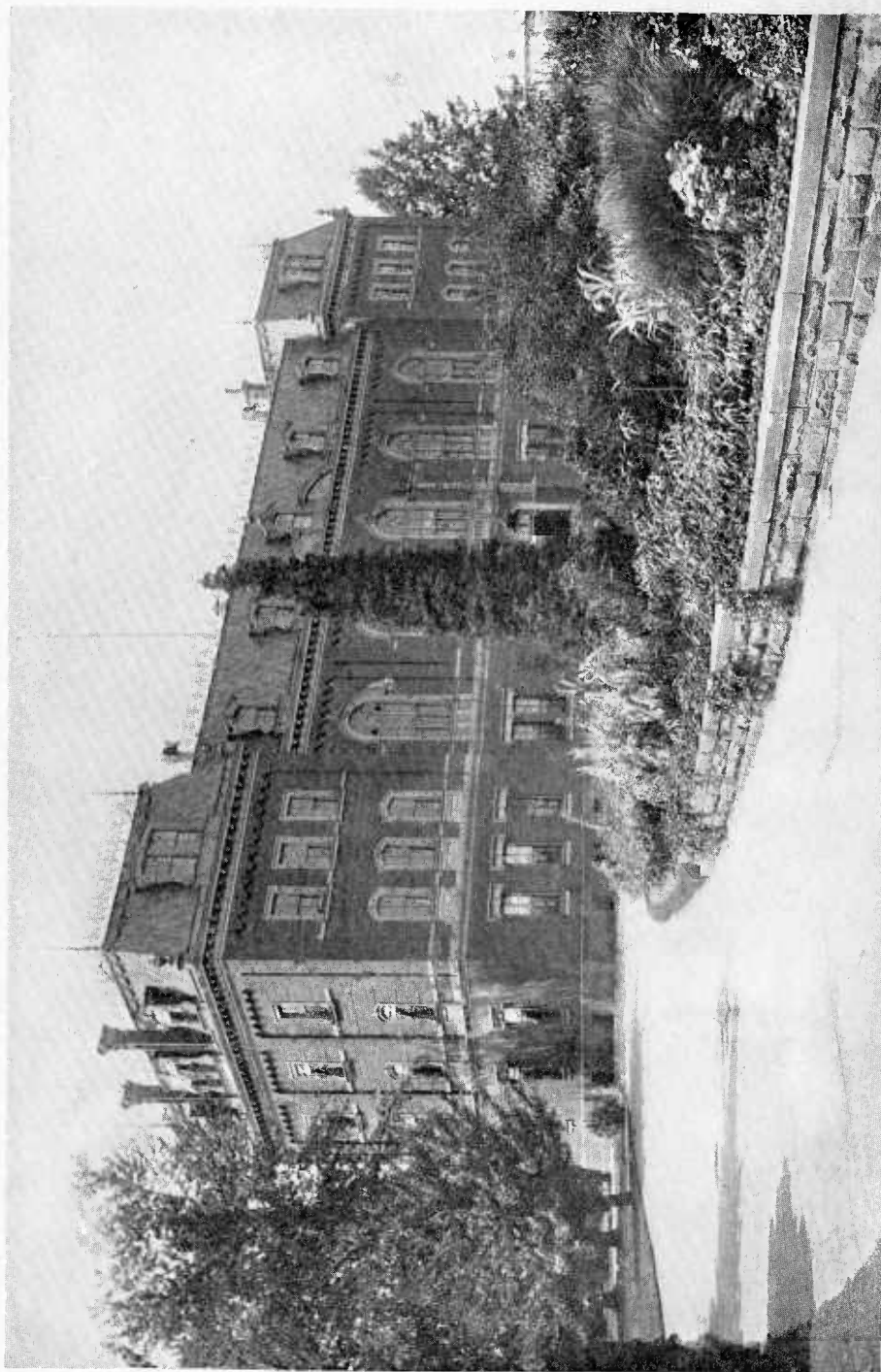
GOVERNMENT PRINTING OFFICE.

1898.



1

P96B



MAIN BUILDING OF THE U. S. DEPARTMENT OF AGRICULTURE.

BULLETIN No. 8.—REVISED EDITION.

U. S. DEPARTMENT OF AGRICULTURE.

DIVISION OF PUBLICATIONS.

---

## HISTORICAL SKETCH

OF THE

U. S. DEPARTMENT OF AGRICULTURE;

ITS OBJECTS AND PRESENT ORGANIZATION.

COMPILED BY

CHARLES H. GREATHOUSE,

*Division of Publications.*

Under direction of

GEO. WM. HILL,

*Chief of Division of Publications.*



WASHINGTON:

GOVERNMENT PRINTING OFFICE.

1898.

## LETTER OF TRANSMITTAL.

---

U. S. DEPARTMENT OF AGRICULTURE,  
DIVISION OF PUBLICATIONS,  
*Washington, D. C., June 3, 1898.*

SIR: A frequent demand for information regarding the origin and development of the Department of Agriculture led to the compilation of the accompanying historical sketch. The compiler, Mr. C. H. Great-house, of this Division, was instructed to follow as closely as possible, in the selection of subjects mentioned, the annual reports of the several Commissioners and Secretaries, prominence being given to those features of the work of the several administrations which the administrators themselves seem to have regarded as specially worthy of attention.

This historical sketch has been supplemented with a statement of the origin and duties of the several bureaus, divisions, and offices of the Department, in which the several chiefs have concurred, and by citations from the several laws under which the Department has attained its present stage of development.

The sketch has already been published as Bulletin No. 3 of this Division, the original manuscript therefor having been submitted February 28, 1898. The first edition is already exhausted, and, inasmuch as the demand for it continues, a reprint is rendered necessary. Advantage has been taken of the opportunity thus afforded to make some slight additions and emendations in the text. Hence the reprint as a "revised edition" is recommended.

Respectfully,

GEO. WM. HILL,  
*Chief.*

Hon. JAMES WILSON,  
*Secretary.*

# CONTENTS.

	Page.
Early Government aid of agriculture in America.....	5
Washington's views as to a Board of Agriculture.....	6
Reception of Washington's suggestions.....	6
Work of American representatives abroad .....	7
Agricultural Division in the Patent Office.....	8
First appropriation by Congress.....	8
Growth of the work in the Patent Office.....	8
Organization and work of independent Department.....	9
Commissioner Newton's term of office.....	9
Appointment of early officials.....	10
Weather service and beet sugar inquiry suggested.....	11
Death of Commissioner Newton .....	11
Commissioner Capron's term .....	12
Experimental farm given up—Division of Botany.....	13
Commissioner Watts's term.....	13
New work undertaken.....	14
Weather reporting transferred to the War Department.....	14
Commissioner Le Duc's term.....	15
Investigation of animal diseases .....	15
Experiments with sorghum and other work.....	16
Commissioner Loring's term.....	16
Origin of Bureau of Animal Industry .....	17
Development of the work in statistics.....	17
Commissioner Colman's administration .....	18
Office of Experiment Stations .....	19
New divisions established .....	19
Scientific discoveries.....	20
War on contagious diseases.....	20
The Department raised to the first rank .....	20
Secretary Rusk's administration.....	21
First of the Farmers' Bulletins .....	22
Investigation of foreign markets .....	22
Pleuro-pneumonia eradicated.....	23
Inspection of American cattle in England.....	23
Improvements in transportation of cattle by sea.....	23
Texas fever .....	24
Establishment of the Weather Bureau .....	24
Experiments and improvements .....	24
Secretary Morton's administration .....	25
Development and reorganization.....	26
The Columbian Exposition—Discoveries and advances.....	27
The civil service, and savings.....	28
Yearbook—Expositions—Assistant Secretary .....	28
Commencement of Secretary Wilson's administration.....	28
The Department buildings and grounds .....	28
Main Department building.....	28
Erection of smaller structures .....	29
Weather Bureau—Department grounds.....	29

	Page.
Cost of the Department; its value to the country.....	30
Increase in cereals .....	30
Other manifest gains.....	31
Secretary Rusk's estimate .....	32
Organization and duties of bureaus, divisions, and offices.....	33
Weather Bureau .....	33
Bureau of Animal Industry .....	33
Division of Gardens and Grounds .....	34
Division of Chemistry .....	34
Division of Entomology .....	35
Division of Statistics .....	35
Division of Botany .....	35
Division of Accounts and Disbursements .....	36
Division of Forestry .....	36
Division of Biological Survey.....	36
Division of Pomology.....	36
Division of Vegetable Physiology and Pathology.....	36
Office of Experiment Stations .....	37
Office of Fiber Investigations .....	37
Division of Publications .....	37
Office of Road Inquiry.....	38
Division of Agrostology.....	38
Division of Soils.....	38
Section of Foreign Markets.....	38
Library .....	39
Museum .....	39
Law creating the Department of Agriculture .....	41
Change in rank of Department .....	42
Law creating the Bureau of Animal Industry .....	43
Transfer of Weather Bureau to the Department.....	45
Law for public printing and binding .....	46
Lands for agricultural colleges .....	47
Law establishing experiment stations .....	49
Endowment of agricultural colleges .....	50
Appropriations and disbursements.....	53-68
Index .....	69-74

## ILLUSTRATIONS.

The Department building .....	Frontispiece.
PLATE I. Design of Department building as proposed by Mr. Le Duc.....	16
II. Justin S. Morrill and Wm. H. Hatch.....	47
FIG. 1. Henry L. Ellsworth, Commissioner of Patents.....	8
2. Isaac Newton, Commissioner of Agriculture.....	10
3. Horace Capron, Commissioner of Agriculture.....	12
4. Frederick Watts, Commissioner of Agriculture.....	14
5. Wm. G. Le Duc, Commissioner of Agriculture.....	15
6. Geo. B. Loring, Commissioner of Agriculture.....	17
7. Norman J. Colman, Commissioner and Secretary of Agriculture.....	19
8. Jeremiah M. Rusk, Secretary of Agriculture.....	22
9. J. Sterling Morton, Secretary of Agriculture.....	26

# HISTORICAL SKETCH

OF THE

## UNITED STATES DEPARTMENT OF AGRICULTURE.

### ORIGIN AND DEVELOPMENT.

#### EARLY GOVERNMENTAL AID OF AGRICULTURE IN AMERICA.

The Department of Agriculture had its origin in the farsighted wisdom of Washington and the practical activity of Franklin. The former as President suggested the organization of a branch of the National Government to care for the interests of farmers, and the latter, when the agent of Pennsylvania in England, sent home silkworm eggs and mulberry cuttings to start silk growing. When the representatives of the new United States Government went to foreign lands after the Revolution they followed Franklin's example. The number and value of their contributions increased till Hon. Henry L. Ellsworth, of Connecticut, in 1839, induced Congress to make a trial of a small appropriation for the distribution of the seeds, cuttings, etc., thus collected, and for the publication of agricultural statistics. The experiment was successful and the work of the Department has since had a steady growth.

Governmental aid to agriculture, however, antedated the time of Washington and Franklin, though it was desultory and uncertain. James I, in 1622, encouraged the breeding of silk worms in Virginia; in 1642 the general court of Massachusetts offered premiums for sheep raising, and in 1657 the Virginia legislature passed an act to stimulate the raising of hops. In 1732 a parcel of government ground in Georgia was allotted for growing mulberry trees in aid of the silk culture, and in the ten years preceding 1743 Parliament granted \$600,000 to promote the cultivation of indigo and other crops in Georgia. In 1748 Parliament put a premium on silk culture in the colonies, and in 1766 the South Carolina assembly voted £1,000 for the establishment of a silk filature in Charleston. In 1775 the South Carolina and Virginia legislatures were taking steps to encourage the sheep industry, but the Revolution came on, and all special efforts in behalf of agriculture were lost sight of.

After American independence had been won and peace was firmly established strong friendships grew up between public-spirited Englishmen and Americans. When the British board of agriculture was established in 1793 its chief promoter, Sir John Sinclair, had his friend and correspondent, President Washington, made an honorary member. To a suggestion that a similar board ought to form part of the American Government Washington was favorable, but in his reply to Sir John, in a letter of July 20, 1794, showed his clear understanding of the order of growth of public institutions. He said: "It will be some time, I fear, before an agricultural society with Congressional aids will be established in this country; we must walk, as other countries have done, before we can run. Smaller societies must prepare the way for greater, but with the lights before us I hope we shall not be so slow in maturation as other nations have been."

#### WASHINGTON'S VIEWS AS TO A BOARD OF AGRICULTURE.

In order to bring the matter before the public Washington, in his last message to Congress, on December 7, 1796, made the following statement of his views: "In proportion as nations advance in population the cultivation of the soil becomes more and more an object of public patronage. Institutions grow up supported by the public purse. \* \* \* Among the means which have been employed to this end none have been attended with greater success than the establishment of boards composed of public characters charged with collecting and diffusing information, and enabled by premiums and small pecuniary aid to encourage and assist a spirit of discovery and improvement. This species of establishment contributes doubly to the increase of improvements, by stimulating to enterprise and experiment, and by drawing to a common center the results everywhere of individual skill and observation and spreading them thence over the whole nation."

#### RECEPTION OF WASHINGTON'S SUGGESTION.

This suggestion was seconded by Col. Timothy Pickering, Secretary of State, and was favorably received by public men generally. The response of the Senate, drawn by Senator Read, of South Carolina, was as follows: "The necessity of accelerating the establishment of certain useful manufactures by the intervention of legislative aid and protection and the encouragement due to the creation of boards (composed of intelligent individuals) to patronize the primary pursuits of society are subjects which will readily engage our most serious attention."

The House of Representatives referred the subject to a committee, which reported on January 11, 1797, recommending the creation of such a society as indicated. It was to meet annually, and Congressmen, Federal judges, the Secretaries of State, War, and Navy, and the Attorney-General were to be ex-officio members. The bill was read twice and on the next Monday was taken up for consideration. But a

discussion of direct taxes brought a conflict of opinion between city and country members; also Jefferson opposed the recommendation for a military academy, which was associated with this proposal, on the ground that it was not authorized by the specific powers delegated to Congress by the Constitution. The friends of the measure feared to allow it to come to a vote, and it was never further debated.

A similar unsuccessful attempt was made in 1817. In answer to a memorial from the agricultural society of Berkley, Mass., presented on January 29, Mr. Hulbert, chairman of the special committee to which the matter was referred, reported a bill on February 21 for the establishment of a board of agriculture. The bill was committed to the Committee of the Whole, but got no further. Madison's Administration closed on March 4 following, and that time was too near at hand to undertake new legislation of such importance.

#### WORK OF AMERICAN REPRESENTATIVES ABROAD.

But while Congress was waiting for an opportunity for full deliberation on the subject, consuls and naval officers abroad were sending home seeds and cuttings for new crops and aiding in the introduction of new breeds of domestic animals. During Washington's last Administration William Eaton, consul at Tunis, sent to Timothy Pickering, Secretary of State, several Barbary sheep. They came by an armed vessel in the United States service, commanded by Henry Geddes. Mr. Pickering presented a pair of the sheep to the president of the Philadelphia Agricultural Society, and from these the breed spread throughout Pennsylvania and adjoining States.

In 1810, William Jarvis, United States consul at Lisbon, took advantage of the Napoleonic wars to secure thousands of Merino sheep for this country. The Spanish noblemen who owned the sheep had up to that time been slow to part with their pure-bred stock, as they had a practical monopoly of the finest grades of merino wool, but when the French armies were destroying the flocks they were glad to sell them to the Americans. Also, Chinese and French hogs were introduced early in the present century by such aid of American officials.

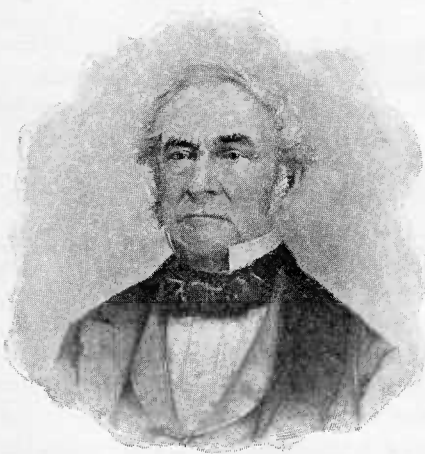
During the Administration of President John Quincy Adams directions were given to all United States consuls to forward rare plants and seeds to Washington for distribution, and the Botanical Garden was established. In 1826 Congress authorized the publication of a manual, prepared by Richard Rush, Secretary of the Treasury, containing the best practical information that could be collected on the growth and manufacture of silk. In 1828 Count Von Haggi's "Treatise on Rearing Silkworms" was printed as a Congressional document. Several valuable reports on the silk industry were also made and published about this time.

## AGRICULTURAL DIVISION OF PATENT OFFICE.

In 1836 Hon. Henry L. Ellsworth, of Connecticut, Commissioner of Patents, received from Government representatives abroad and from others considerable quantities of seeds and many plants, and distributed them to enterprising farmers throughout the country. This he did without Government authority or aid further than the use of the franks of Congressmen who were his personal friends. He also urged in his report that the Government take up the work of aiding agriculture in this and other ways.

## FIRST APPROPRIATION BY CONGRESS.

His suggestions and arguments led to the appropriation in 1839 of \$1,000 for the purpose of collecting and distributing seeds, prosecuting agricultural investigations, and procuring agricultural statistics. The



HENRY L. ELLSWORTH,  
Commissioner of Patents.  
1836-1845.

money was to be taken from the Patent Office fund and the work was to be done under the Commissioner, at that time an official of the Department of State. In his report, made in January, 1841, Commissioner Ellsworth stated that 30,000 packages of seeds had been distributed during the year and that agricultural statistics, as gathered in the census, were being prepared for publication. In 1842 these statistics were published, with a survey of crop conditions and prospects. Progress in agricultural science was reviewed and special notice was made of the

manufacture of sugar from Indian corn and the use of lard oil in place of whale oil for lighting. A firm, it was stated, was seeking to make a contract to supply the light-houses on the Great Lakes with maize oil.

## GROWTH OF THE WORK IN THE PATENT OFFICE.

The distribution of seeds and the collection and publication of agricultural information continued under succeeding Commissioners of Patents. These were Edmund Burke, of New Hampshire; Thomas Ewbank, of New York; Silas H. Hodges, of Virginia; Charles Mason, of Iowa; Joseph Holt, of Kentucky; William D. Bishop, of Connecticut; Philip F. Thomas, of Maryland; S. T. Shugert; and David P. Holloway, of Indiana. In 1849 the Department of the Interior was established, and the Patent Office, with its agricultural work, became a part of it. The collection of seeds and publication of agricultural statis-

tics and scientific articles was directly under the care of the Commissioner until that time. No clerk was especially assigned to the duties. In that year the name of F. G. Skinner, who had been publisher of the *American Farmer* at Baltimore, appears in the *Official Register* as collector of agricultural statistics, at \$1,500 a year. In 1851 it had been found advisable to secure a man of high scientific attainments, and Dr. Daniel Lee, of Georgia, was employed, at \$2,000. In 1853 the salary was reduced to \$1,500 again, and D. J. Browne, of New Hampshire, was employed. In 1855 Mr. Browne's salary had been made \$2,000, and C. L. Alexander, at \$3 a day, was assigned to the same work. In 1857 the roll stood: D. J. Browne, \$2,000; T. Glover, New York, \$2,000; H. C. Williams, Virginia, \$2,000; C. L. Alexander, District of Columbia, \$1,200; W. H. Dietz, Pennsylvania, \$1,000; Thomas Donoho, District of Columbia, and Jos. Kilian and C. Simmons, Maryland, each \$3 a day.

Mr. Browne was succeeded, on change of Administration in 1861, by Isaac Newton, of Pennsylvania. David P. Holloway, of Indiana, became Commissioner of Patents at that time, and in his first annual report made an earnest argument for the establishment of a separate department of the Government to deal with the interests of agriculture and productive arts.

#### ORGANIZATION AND WORK OF INDEPENDENT DEPARTMENT.

The subject of an independent department was immediately taken up in Congress and the necessary legislation enacted practically without opposition. The law\* was approved May 15, 1862. The United States Agricultural Society, organized in 1852 and meeting in Washington annually from that time till 1860, was at all times active in urging the establishment of the department. It was largely instrumental in creating the public opinion which made this practical realization of the hopes of Washington so easily possible. It is noteworthy that in this same year, June 19, 1862, was passed the first act, known as the Morrill law, for the establishment of agricultural colleges.

#### COMMISSIONER NEWTON'S TERM.

The first Commissioner of Agriculture was Hon. Isaac Newton, already mentioned as chief of the section of agriculture in the Patent Office. He took charge in his new capacity on July 1, 1862, when the law establishing a department went into effect. He was a native of New Jersey, but early in life settled in Pennsylvania, where he devoted himself to scientific farming. Under his new appointment he was given full control of the property of the division in the Patent Office and conducted his work independently of the Department of the Interior. The propagating garden at Sixth street and Missouri avenue NW., in Washington, first mentioned in the annual report of 1858, was placed under his care and a tract of 40 acres in the same city, lying between

---

\* The text of this and other laws will be found elsewhere. See pp. 41-52.

Twelfth and Fourteenth streets SW., and B street S. and the canal, the same now forming the Department grounds, was assigned to him for an experimental farm.

The organization of the new Department proceeded rather slowly at first. There was delay in the transfer of the property of the agricultural division from the Patent Office. Commissioner Newton said in his first report, dated January 1, 1863, that he was not yet formally in possession, though he had called attention to the matter in the previous July. Also on January 1, 1864, he said he had been unable to use the ground at Twelfth and B streets SW., as a farm, because it was needed by the War Department as a cattle yard for army supplies.

**Appointment of early officials.**—In 1862 Commissioner Newton appointed



ISAAC NEWTON,  
Commissioner of Agriculture.  
1862-1867.

William Saunders to be superintendent of the propagating garden, and Mr. Saunders aided materially with advice in organizing the departmental work. It was proposed to employ a chemist, and Mr. Saunders was asked what there was in his branch for the attention of such an official. He said that in the experiments with new varieties of grapes there were analyses which could be made with profit. On August 21, 1862, C. M. Wetherill was appointed Department chemist. He made certain analyses of grapes, and also of sorghum sirup, which

were given to the public in the second bulletin published by the Department. The first bulletin was a pamphlet by Mr. Saunders on the objects and aims of the Experimental Garden, with a catalogue.

This work and the distribution of plants from the propagating garden, the collection and distribution of seeds, and the publication of agricultural statistics and other information constituted the chief activities of the Department for the first six months.

In 1863 Commissioner Newton appointed Lewis Bollman to be statistician and Townend Glover to be entomologist. He imported several hundred bushels of choice seed wheat, corn, rye, and other cereals, and several thousand dollars worth of other seeds. At the same time with these he distributed 1,500 bushels of cotton seed and a large amount of tobacco seed. An especial effort was made to stimulate the cultivation of cotton in the Northern States. In all, Commissioner Newton distributed in 1863 1,200,000 packages of seed and 25,750 bulbs, cuttings, and vines. The publication of monthly reports of the condition

and prospects of crops was begun. A Maine farmer wrote soon after this was well under way: "Your monthly reports give me just the information I have wanted for years. Knowing the supply and demand I am able to sell at my own price."

**Weather service and beet sugar inquiry suggested.**—The study of the climate and storms of this country had long been fostered by the various Departments of the Government, and by the Smithsonian Institution as well as by several individual States before the act of 1862 establishing the Department of Agriculture. Commissioner Newton in his first and second annual reports dwelt on the vital importance of the weather and climate, and in his third report (1864, p. 10) said:

"I would renew my suggestion of last year that if under the direction of the Government the state of the weather at different points of the country could be daily communicated by telegraph, so as to be immediately spread over the whole country, very important and beneficial results might follow."

The publication of meteorological data gathered by Smithsonian observers was continued in the monthly reports of the Department from 1863 to January, 1872; but the suggestion of Commissioner Newton and special efforts made by many to induce the Government to establish a practical service for the prediction of storms and floods, resulted in the organization of a meteorological division in the office of the Chief Signal Officer of the Army, and finally, after thirty years, in the establishment of the Weather Bureau as it exists to-day.

In his third annual report, Commissioner Newton also called attention to the beet-sugar industry, as it had been developed in France, and suggested its adaptability to this country.

**Death of Commissioner Newton.**—The following summer (1865) he got possession of the land at Twelfth and B streets SW., and started the experimental farm. His son, Isaac Newton, jr., was placed in charge of this work. Tests were made that summer of new and promising varieties of corn, wheat, rye, oats, barley, rice, sorghum, peas, beans, grasses, clover, cabbage, lettuce, onions, tomatoes, potatoes, and melons. Seventy-seven varieties of potatoes were tried. A large quantity of seed was saved from the farm and distributed during the winter and spring.

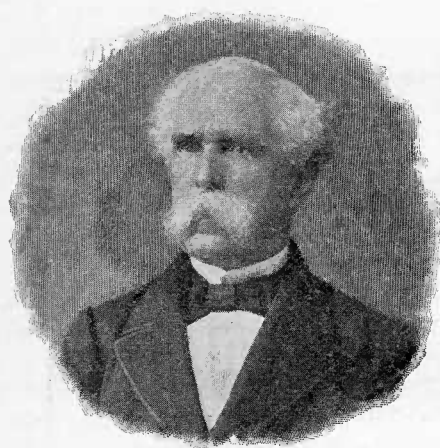
In July, 1866, Commissioner Newton suffered a sunstroke while in the field on the experimental farm. A large number of varieties of wheat—Tappahannock, Mediterranean, and others now in general use—were being tried. The grain had been cut and was lying on the ground when a thunder shower suddenly appeared. Commissioner Newton was in his room at the Patent Office. He hastened over to the farm, a mile away, to instruct the workmen how to save the wheat free from any injury. The sun was hot and he was wearing a high silk hat. In moving hurriedly about the grounds he became overheated. His son took him to the little office on the farm and summoned medical assistance. Restoratives were applied and he partially recovered, but was never well again. He died from the effects of the injury on June 19, 1867.

During Commissioner Newton's time the foundations were laid for the Department library and museum. The first appropriation for the library was \$4,000, in 1864, for the library and laboratory jointly. The Glover collection was bought for the museum in 1867 for \$10,000.

After Mr. Newton's death Mr. J. R. Dodge, who had succeeded Professor Bollman as statistician, became very prominent in Department work and so remained for twenty-five years. He edited the Annual Reports and the Monthly Reports and wrote much of the most valuable matter that appeared in them.

#### COMMISSIONER CAPRON'S TERM.

John W. Stokes, chief clerk of the Department, was acting Commissioner after Mr. Newton's death till December 4, 1867, when Gen. Horace Capron, of Illinois, who was appointed on November 29, took charge. He was a native of New



HORACE CAPRON,  
Commissioner of Agriculture.  
1867-1871.

York, but in early life removed to Maryland where he became a farmer on an extensive scale, applying scientific principles to his operations. In 1847 his receipts amounted to more than \$36,000. In 1854 he removed to Illinois. There he continued farming, especially as a breeder of Devon cattle, till the civil war broke out when he enlisted in the army, where he rose to be a brigadier-general. After the war he returned to his farm, and at the death of Mr. Newton was selected by President Johnson to succeed him.

Commissioner Capron in his first report paid much attention to steam plowing, beet-sugar making, and the problem of silk culture. He established a system of exchanges of seeds and plants with many of the Governments of Europe, Asia, and South America. He had the chemical laboratory fitted up and made a large collection of native grasses, and forage and fiber plants from Colorado, Texas, New Mexico, and Arizona. In 1868 the Commissioner was asked by Hon. Seth Green, then fish commissioner in New York, by United States Treasurer Spinner and others to bring the possibilities of fish culture to the attention of Congress. A number of articles published at this time and in the years immediately succeeding made way for the United States Fish Commission.

The main building of the Department was completed and occupied during Commissioner Capron's term. There was favorable comment upon the fact that the cost was kept within the amount appropriated.

This was the first instance of the kind in case of so important a work.

An investigation of Texas cattle fever was made and Mr. Capron recommended the establishment of a division of veterinary surgery. The propagation of cinchona plants was begun with a view to introduce the culture in the warmer sections of the country.

**Experimental Farm Given up—Division of Botany.**—From the outset it had been recognized that the experimental farm at Twelfth and B streets was too small because of the mixing of varieties of seeds when cultivated close together. Mr. Stokes, in his report accompanying General Capron's, recommended that the farm be converted into an American arboretum. This suggestion was adopted the more readily because the new Department building was being erected on the grounds.

The Division of Botany was organized in 1868. It was upon the suggestion of Prof. Joseph Henry, of the Smithsonian, who stated that considerable quantities of botanical specimens were lying at the Smithsonian unmounted and that they could be made available to the Department of Agriculture if there were a botanist. The collection came from the Hayden and other explorations in the West and from the Japan Expedition. It was agreed upon further conference of those interested that a herbarium should be established in charge of the Department of Agriculture. C. C. Parry was appointed botanist to arrange and care for the specimens and to do other work in that line as it should arise.

The high standing of the Department before the world, as well as the leading position already attained by American agriculture, is indicated by the selection of the second Commissioner to direct the inauguration of improved methods of farming in Japan. That people was then at the threshold of the development which has placed it among the great nations. A commission had been appointed by their Government to develop agriculture, and they chose General Capron as chief adviser. He resigned the commissionership on June 27, 1871.

#### COMMISSIONER WATTS'S TERM.

Judge Frederick Watts, of Carlisle, Pa., was appointed by President Grant to fill the vacancy caused by the resignation of Commissioner Capron. He had been on the bench in the ninth Pennsylvania district before the war, but in 1858 abandoned the law for farming. He was a native of Carlisle, and a graduate of Dickinson College. He was the first president of the Pennsylvania Agricultural Society, and for twenty-seven years was president of the Cumberland Valley Railroad Company.

Commissioner Watts found in operation the Divisions of Chemistry, Garden and Grounds, Entomology, Statistics, and Botany. This brief roster affords an interesting comparison with that which represents

the Department organization at the beginning of Secretary Wilson's term, page 33 of this publication.

In his first report the Commissioner recommended that the number of copies of the annual report for gratuitous distribution be greatly reduced, and that the remainder be deposited with the Public Printer for sale at the cost of printing and postage.

The cultivation of ramie on an extensive scale had been undertaken in the South, and Commissioner Watts urged that planters should push this industry together with the raising of jute.

**New work undertaken.**—The Division of Microscopy was established in 1871 by the appointment of Thomas Taylor, Microscopist. Early among his services was an investigation of the cranberry rot in New Jersey. He also soon made a study of mushrooms, and suggested the cultivation of them as a profitable business. Other subjects investigated by him were mildews on grapes, yellows in peaches, and black knot on plums.



FREDERICK WATTS,  
Commissioner of Agriculture.  
1871-1877.

Commissioner Watts was the first to give much attention to timber interests. He had sections of the most valuable trees of the country on exhibition at the Centennial Exposition, and in 1877 secured an appropriation for a forestry investigation. Mr. Franklin B. Hough, of Pennsylvania, was appointed special agent in charge of the work. This was a beginning of the Forestry Division which was fully organized several years later.

The Centennial Exposition brought large donations from foreign governments for the museum, so that the space allotted to it had to be nearly doubled. Contributions were received from Great Britain, Australia, Japan, Egypt, Norway and Sweden, the Netherlands, Brazil, Argentina, Chile, and Mexico. Large additions were also made about this time to the herbarium. Charles Richards Dodge, then assistant entomologist, estimated that the museum collections were worth \$100,000. Models of fruits and water-color drawings formed an interesting part of the display.

**Weather reporting transferred to the War Department.**—Commissioner Watts objected to the publication in the monthly reports of the meteorological summary and notes furnished by the Smithsonian observers without analysis and explanation, and suggested that the work be turned over to the Signal Service of the Army. In response Congress made an appropriation with which the War Department was directed

to collect and publish meteorological information for the benefit of agriculture.

The Division of Statistics at this time had about 3,000 voluntary correspondents. Commissioner Watts in his report for 1876 called attention to the fact that the appropriation for this division had been cut from \$15,000 to \$10,000, declaring that the work had been thereby greatly crippled. The appropriation was restored to the usual amount the following year. Commissioner Watts complained of delay in the publication of his annual report. He was also hampered by the abolition of the franking privilege for the distribution of the report.

The ravages of the grasshoppers in the West began about this time and the Department sent out \$30,000 worth of seeds to the devastated districts. This was under a special appropriation.

#### COMMISSIONER LE DUC'S TERM.

Hon. Wm. G. Le Duc, now of Hastings, Minn., was appointed Commissioner of Agriculture by President Hayes, and assumed control on July 1, 1877. He took strong ground against the indiscriminate distribution of common seeds. In his first annual report he cited the sections of the Revised Statutes bearing upon the subject, and pointed out in italics that the distribution "shall be confined to such seeds as are rare and uncommon to the country." It was plain, he urged, that the law did not contemplate the sending out of such seed as may be bought of seedsmen generally. He made a comparison of the small appropriations for the Department with the sums given other branches of the Government and asked for more liberal treatment. He also pointed out the need of a general index for the annual reports of the Department. Such an index, completing earlier indexes, was prepared last year in the Division of Publications by George F. Thompson.



WM. G. LE DUC,  
Commissioner of Agriculture.  
1877-1881.

**Investigation of animal diseases.**—Under a special appropriation of \$10,000 in 1878 Commissioner Le Duc directed an investigation of diseases among hogs and other domestic animals, and in his annual report called attention at length to pleuro-pneumonia among cattle, which had already secured a wide foothold in this country. The inquiry into animal diseases was kept up during his term with increasing energy. A careful study was made of glanders and farcy. At the same time an investigation of the history and habits of insects important in agriculture was maintained under a special appropriation of \$10,000, renewed by succeeding Congresses.

An international exposition at Paris took place at this time, and the Department received \$15,000 with which to make its exhibit. Professor McMurtrie, the Department chemist, was placed in charge. A creditable showing was made, though, as Commissioner Le Duc stated, the money was available too late to secure the best results.

**Experiments with sorghum, and other work.**—The production of sugar, both from sorghum and from beets, received much attention, and under a special appropriation for machinery, etc., considerable experiments with sorghum were conducted at Washington. Commissioner Le Duc was unable to obtain there a supply of properly grown canes, and asked for the purchase of 1,000 acres of ground in the vicinity upon which the Department might grow its own material for the experiments, and conduct an experimental farm. He also wished that auxiliary experimental farms should be established in each of the States.

Irrigation, which had received some attention in the report of 1874, was beginning to enlist much interest, and \$20,000 was appropriated by Congress in 1880 for experiments with artesian wells.

Commissioner Le Duc got an appropriation of \$15,000 for investigation of tea culture, and leased a farm in South Carolina for the purpose of experimenting, and to propagate plants for general distribution. He believed that a few years would develop a large industry of tea growing in the Southern States.

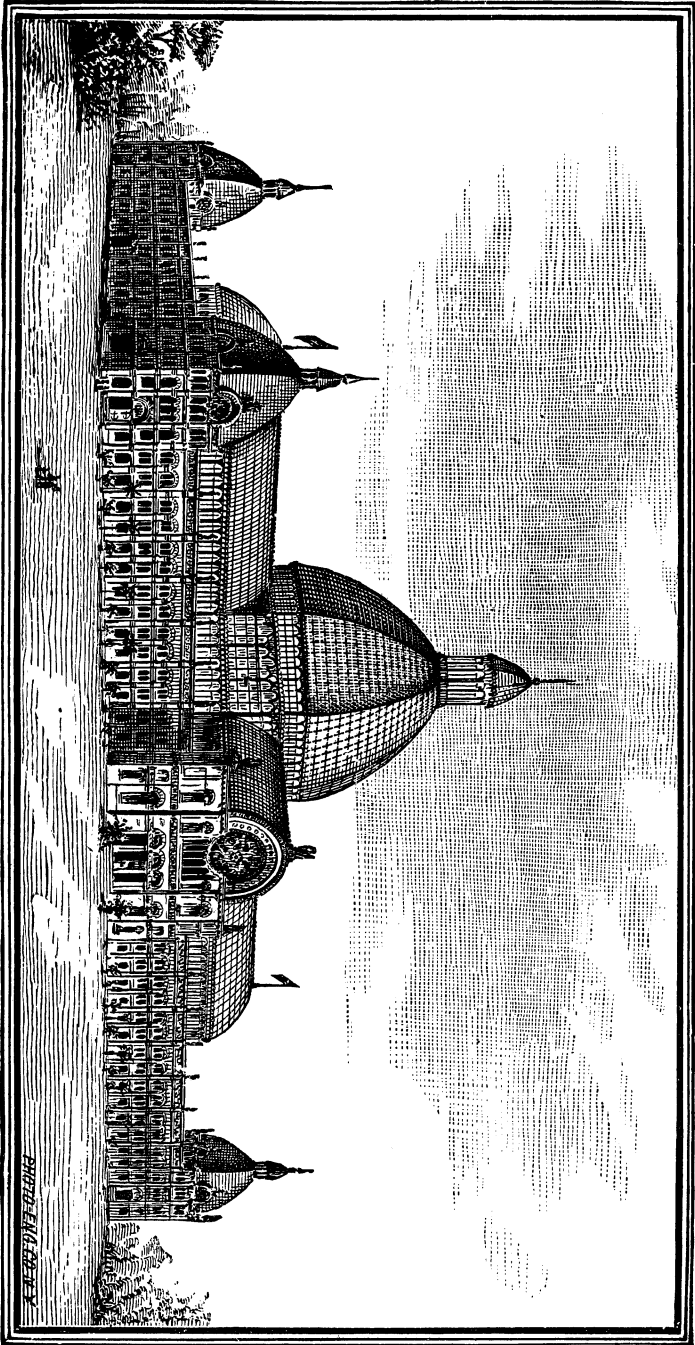
In spite of his opposition to the distribution of common seeds, Mr. Le Duc sent out, in 1877, 2,333,474 packages, of which 943,530 went to the district ravaged by grasshoppers. He also distributed 156,862 plants, cuttings, etc., from the propagating gardens, of which 70,000 were tea plants, 3,000 olives, 1,000 coffee, and 500 date palms.

Commissioner Le Duc recommended the erection of a larger Department building on the same site. The plans approved by him were for a structure in the form of a hollow rectangular parallelogram 500 feet by 1,000 feet, with an enclosed court for a display of agricultural implements. The view of the front of the proposed building here (Plate I) presented was published in the report of 1880.

#### COMMISSIONER LORING'S TERM.

Dr. George B. Loring, of Massachusetts, was appointed Commissioner of Agriculture by President Garfield, and took charge on July 1, 1881. He was educated as a physician, but was postmaster at Salem, Mass., for four years ending in 1857, and from that time devoted his time to scientific farming and politics. He was president of the New England Agricultural Society for twenty-seven years prior to his death in 1891.

In his first report he stated the work of the Department as he found it as follows: Investigations of tea planting, of sugar making from sorghum, of vegetable and animal fibers, of economic insects, of irrigation by the use of artesian wells, of diseases of domestic animals, and of the agricultural condition of the Pacific Coast.



DESIGN FOR DEPARTMENT BUILDING AS PROPOSED BY MR. LE DUC.

PHOTO-ENGRAVED



The tea farm, as shown in a report by Mr. Saunders, the Horticulturist, gave little promise, and Commissioner Loring cut down the outlay in that direction as much as practicable under the lease already made. The attempt to sink an artesian well at Fort Lyon, Colorado, undertaken under Commissioner Le Duc, was abandoned. Two other wells were started on railroad lines in the plains east of Denver. The sorghum experiments were brought to a close with disappointing results as to the production of sugar. A report was secured from the National Academy of Science on the history of sorghum experiments for twenty-five years. Experiments with sorghum sirup were continued by the chemist. The distribution of sugar-beet seed on a large scale was begun and the Division of Chemistry began a series of analyses to determine the possibilities of producing sugar from beets.

**Origin of Bureau of Animal Industry.**—Commissioner Loring gave especial attention to the diseases of domestic animals, and the appropriation for investigations in that line was more than doubled. A veterinary experiment station was established at Washington under D. E. Salmon. Inquiries were carried on in Maine, Connecticut, New York, New Jersey, Pennsylvania, Maryland, Virginia, Tennessee, Kentucky, Ohio, Indiana, Illinois, Missouri, Kansas, Arkansas, and Texas. The study of inoculation, which resulted in the discovery and use of mallein and other forms of vaccine made and distributed by the Department was suggested in the report for 1883. The control of quarantine against diseased animals was transferred to the Commissioner from the Treasury Department. In 1884 the Bureau of Animal Industry was established by act of Congress with \$150,000 to prosecute the crusade against pleuro-pneumonia and other diseases.

The problem of silk culture was taken up anew with an appropriation of \$15,000 in 1884. A special agent was appointed to conduct experiments under the direction of the entomologist.

The United States Entomological Commission was transferred to the Department of Agriculture from the Interior in 1881 and continued its reports on injurious insects.

**Development of the work in statistics.**—The Division of Statistics was reorganized, with a view to a more complete and perfect system of crop reporting. The appropriation was raised in 1882 to \$80,000.



GEORGE B. LORING,  
Commissioner of Agriculture.  
1881-1885.

"The design is," wrote Dr. Loring in his report, "by establishing a permanent system of efficient and prompt collection of current statistics to be able to present instantly and accurately the current changes in crop areas and conditions and in the production of breadstuffs, meats, industrial products, and all the results of agricultural labor."

The publication of transportation rates was begun in the monthly reports by the direction of Congress, and a European agency was established for the collection of statistics showing the prospective demand for American produce, especially grain and meats. E. J. Moffat was appointed as agent at \$2,500 a year. He had his office with the American consul-general in London.

The Bahia seedless oranges were propagated extensively in the conservatories at Washington at this time, and young plants were sent to California and other States. Mr. Saunders estimated that the Division of Gardens and Grounds was sending out yearly 100,000 plants of all kinds. Increasing quantities of seeds were distributed, reaching in 1883 a total of 2,467,230 packages, of which 76,232 packages were tobacco seed.

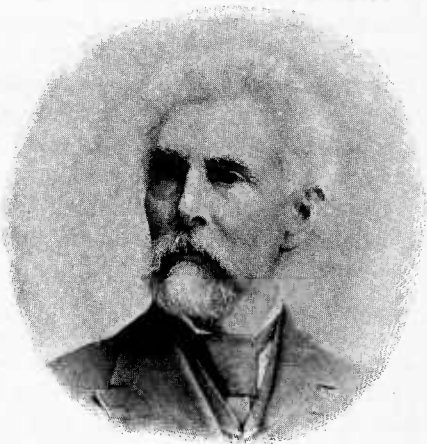
#### COMMISSIONER COLMAN'S ADMINISTRATION.

Hon. Norman J. Colman, of Missouri, was appointed Commissioner by President Cleveland and took his place on April 3, 1885.

Norman J. Colman was born near Richfield Springs, N. Y., May 16, 1827. He obtained an academic education, then went to Louisville, Ky., where he taught school, attended the Louisville Law University, took the degree of bachelor of law and his license to practice, and located at New Albany, Ind., where he began the practice of his profession in partnership with M. C. Kerr (his former room and class mate), who became Speaker of the House of Representatives of the United States and died while holding that office. They soon obtained a fine practice, and Mr. Colman was elected district attorney, which office he held one year, and then removed to St. Louis, Mo., continuing the practice of his profession. But having a strong love for rural pursuits, he purchased a country home, and began the publication of an agricultural paper under the name of Colman's Rural World. In the civil war he was a Union man, and lieutenant-colonel of the Eighty-fifth Regiment of Enrolled Missouri Militia. In 1865 he was elected to the Missouri legislature. In 1868 he was nominated by his party (Democratic) for lieutenant-governor, but with his entire party ticket was defeated. In 1874 he was again nominated for lieutenant-governor and was elected. He was a member of the board of curators of the State University for sixteen years. He was president of the State Horticultural Society, of the State Live Stock Breeders' Association, of the State Board of Agriculture, and of many other State and National associations organized to advance the interests of the farmer. In 1885, when appointed by President Cleveland to be United States Commissioner of Agriculture, he enlarged the sphere of the Department, adding several important divisions. Under his administration it became one of the Executive

Departments of the Government on February 11, 1889, and he was appointed by the President the first Secretary of Agriculture. On his retirement from the office Mr. Colman received from the President of the Republic of France, through its minister of agriculture, the Cross of "Officier du Merite Agricole," accompanied by a gold medal and the decoration of the order.

**Office of Experiment Stations.**—Mr. Colman took a deep interest in the plan being pushed at this time by Representative Hatch for the establishment of agricultural experiment stations in all the States. He called a meeting of the leading men of the agricultural colleges and existing experiment stations, at which the need of Federal aid for experiments and a central office in the Department with advisory duties, was made prominent. In accordance with the opinions expressed at this convention the Hatch bill, which became a law in 1887, made it a part of the duty of the Commissioner of Agriculture "to furnish forms for the tabulation of results of investigations or experiments; to indicate, from time to time, such lines of inquiry as to him shall seem most important; and, in general, to furnish such advice and assistance as will best promote the purposes of this act." For this purpose an office was established, known in the Department as the Office of Experiment Stations, under a chief who is styled director. The publication of a periodical, such as the present Experiment Station Record, was recommended.



NORMAN J. COLMAN,  
Commissioner and Secretary of Agriculture.  
1885-1889.

**New divisions established.**—The Division of Pomology and the Division of Ornithology and Mammalogy were established under Commissioner Colman. The latter was in response to a demand for an investigation of the damage done to crops and fruits by birds, especially the English sparrow and bobolink, or rice bird.

The section of vegetable pathology was formed in the Division of Botany. A station was established at Aurora, Ill., for the study of apiculture. The irrigation inquiries were continued and a report was made on what had already been done. The study of public highways was begun.

The question of reeling silk from the cocoons at a cost sufficiently low to permit competition with cheap foreign labor was taken up, and reeling rooms were established at New Orleans, La., Philadelphia, Pa..

and Piedmont, Cal. These were discontinued after a year, and the work was carried on at Washington, D. C.

Commissioner Colman, in his reports, suggested the commercial cultivation of medicinal and similar plants, naming rhubarb, licorice, arnica, belladonna, digitalis, poppy, ginger, cinchona, vanilla, jalap, and sarsaparilla. He called attention to the possibilities of agriculture in Alaska, the rapid inroad upon the forests for supplying railroad ties, and the planting of trees in the plains.

**Scientific discoveries**—The sale of counterfeit butter was arousing the interest of farmers, and prosecutions under the law forbidding it were in progress. Dr. Taylor, the Department microscopist, reported the discovery of characteristic differences between the crystals of lard, beef fat, and butter, as seen under the glass. This discovery was recognized in a report of the American Association of Microscopists as a valuable factor in the determination of the genuineness of butter offered for sale. The application of scientific methods to sugar making was successfully carried out, the diffusion process was tried in making sugar from cane, and a resultant increase in the yield of 40 pounds of sugar to the ton of cane was reported.

**War on contagious diseases.**—The Bureau of Animal Industry lacked State cooperation in exterminating contagious diseases, because the whole burden of destroying infected animals was thrown upon the State. In 1887 legislation was secured remedying this defect in the law and appropriating \$500,000 for the Bureau, with a provision that any part of the money might be used to pay for animals it was found necessary to kill. Good progress was at once made in stamping out pleuropneumonia. Within the first year 35,451 herds, over 300,000 head, were inspected, and 8,139 animals were slaughtered and paid for. The total expenditures of the Bureau for 1888 were \$499,975.32, against \$99,985.56 in 1887.

#### THE DEPARTMENT RAISED TO THE FIRST RANK.

On February 9, 1888, the Department was raised to the first rank in the executive branch of the Government. This was largely due to the efforts of the National Grange, an organization founded in 1868 by gentlemen connected with or specially interested in the Department.

At the meeting of the National Grange in Chicago, in 1876, resolutions were passed asking the recognition of the work as of equal importance with any branch of the service. In part these resolutions were as follows:

Whereas the agricultural masses compose one-half of the population of the free States of America upon whom ultimately rest the taxes which sustain the Government. \* \* \*

*Resolved*, That American agriculturists demand that they shall be recognized as a real factor in the Government by the establishment of a bureau of agriculture, to be presided over by a Cabinet officer, who shall organize the same upon a plan to be devised by the wisdom of Congress, which shall embrace to the fullest the agricultural interests of 20,000,000 of people. \* \* \*

The resolutions were passed on November 25 when the result of the Presidential election of that year was still in doubt. All members of the organization pledged themselves in support of the movement, irrespective of political affiliations.

The work of the Department was at this time treated slightly by many Congressmen, and was considered merely as a means to reach many constituents with small favors by the distribution of seeds and books. The clerkships and other positions in the Department were regarded as patronage to be given to political adherents, with little regard for fitness. So notorious was this condition that the Grange leaders at one time seriously discussed the propriety of asking that the Department be abolished entirely.

But Commissioner Le Duc, when appointed by President Hayes, took up the duties with such earnestness and vigor that the Grange rallied to his support. Congressmen were impressed with the seriousness of the work for which the Commissioner asked appropriations, and at the close of his term the supply of money was made more liberal.

The demand that the head of the Department be given a place at the President's council table was pressed persistently by the National Grange, and was finally taken up by the Farmers' Congress and other influential bodies and by so many persons interested in public affairs that public opinion became fixed in favor of the change, and it was made.

The office of Commissioner having been abolished, Mr. Colman was appointed Secretary, and held the position a little less than a month.

#### SECRETARY RUSK'S ADMINISTRATION.

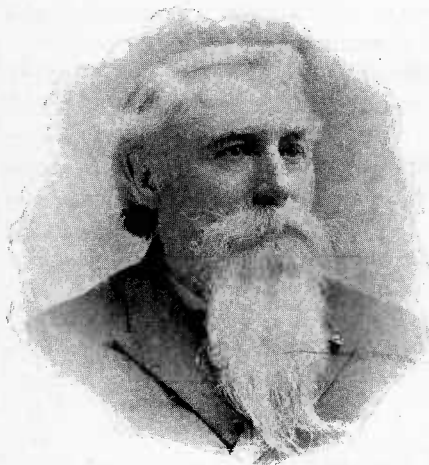
Hon. Jeremiah M. Rusk was selected by President Harrison as his Secretary of Agriculture and took control on March 7, 1889. The sketch of his life in the Congressional Directory of that year says: "General Rusk was born in Morgan County, Ohio, in 1830. He was educated in the common schools of the neighborhood, which he attended winters working on the farm in summer. He continued to reside on the farm until his removal to Wisconsin in 1853, since which time—with the exception of a short time—he has been engaged in farming. He held several county offices in Wisconsin; was a member of the legislature of that State in 1862; was commissioned major of the Twenty-fifth Wisconsin Volunteer Infantry in July, 1862, and was soon after promoted to the colonelcy. He served with General Sherman from the siege of Vicksburg till mustered out at the close of the war, and was brevetted brigadier-general for bravery at the battle of Salkehatchie. He was elected bank comptroller of the State of Wisconsin in the year 1866, and reelected in 1868; was elected to the Forty-second, Forty-third, and Forty-fourth Congresses, and was chairman of the Committee on Invalid Pensions in the Forty-third Congress. He was a member of the Republican Congressional Committee for several years, and was

a delegate to the National Republican Convention in 1880. He was appointed by President Garfield and confirmed by the Senate as minister to Paraguay and Uruguay, which appointment he declined, and was also tendered by President Garfield a mission to Denmark and the position of Chief of the Bureau of Printing and Engraving, both of which he declined. He was elected governor of Wisconsin in 1881, reelected in 1884, and reelected for a third term in 1886. He was appointed Secretary of Agriculture on March 4, 1889."

In reorganizing the Department Secretary Rusk divided the work into two main classes: Executive, under the immediate charge of the Secretary; and scientific, under the Assistant Secretary, Hon. Edwin Willits, that office having been just then created.

**First of the Farmers' Bulletins.**—Mr. Rusk urged the necessity of placing the information gathered by the Department more generally in the

possession of farmers and established the Division of Records and Editing, now the Division of Publications, under Mr. George William Hill, its present chief, to edit and supervise publications and administer the printing fund. He recommended the publication of the Farmers' Bulletins, which have since become so popular. The work to be done in these he summarized as follows: Frequent publication of the results of scientific work and the circulation of the information among practical farmers, insuring its direct application to actual farming operations. He insisted that the language em-



JEREMIAH M. RUSK,  
Secretary of Agriculture.  
1889-1893.

employed in the bulletins should be intelligible to farmers generally. In addition he planned the publication by press associations, newspapers, and agricultural periodicals of advance reports of the important conclusions reached by experiment and research. In this way he believed the great majority of the farmers of the country would be promptly reached. The demand for Farmers' Bulletins grew rapidly from the start. Several have run over 100,000 in their distribution, and some have exceeded 200,000.

**Investigation of foreign markets.**—Mr. Rusk began the systematic investigation of foreign markets for American products, procured a special appropriation for the purpose, and for some years a special agent was maintained in Europe. This gentleman, Col. Charles J. Murphy, gave particular attention to the introduction of corn meal for bread among the people of Europe and in the armies of the Continent.

**Pleuro-pneumonia eradicated.**—The Bureau of Animal Industry grew steadily. Complaints were made by foreign Governments that American meats came very frequently from diseased animals. Restrictions were put upon their importation and in some cases absolute prohibition was enforced. The meat was generally subjected to Government inspection on its arrival in Europe, and as there was no inspection on this side no reply could be made to assertions that it was diseased. Secretary Rusk obtained authority to make inspections and money to pay for them. Soon after this system of inspection was fully in operation the prohibition against American pork in Germany was withdrawn. The number of animals inspected in 1892 was 5,076,929. The total expenses of the bureau were increased from \$469,113.35 to \$649,980.91. The bureau was reorganized at this time and its work assigned to subdivisions as follows: Animal pathology, field investigations and miscellaneous work, and quarantine. The fight against infectious diseases was energetically pushed and on September 26, 1892, Secretary Rusk announced that the country was entirely free from contagious pleuro-pneumonia.

**Inspection of American cattle in England.**—In 1890 inspection of American cattle by American inspectors stationed in Great Britain was inaugurated. This was necessary in order to check reports of disease in cattle arriving in that country from the United States. With the aid of Minister Robert Lincoln arrangements were made to have all cases of disease examined by American as well as English veterinarians. This led to animated discussions between the two sets of inspectors as to the nature of the malady discovered. Many cases reported by the English officials as pleuro-pneumonia were shown by the American inspectors to be only broncho-pneumonia, a noncontagious form of lung disease. In every case, moreover, by a system of tagging the cattle for identification, it was shown that the cattle so condemned had never been exposed. The condemnations soon ceased.

**Improvement in transportation of cattle by sea.**—In 1891 Mr. Plimsoll, whose work for the English sailor had established his reputation as a philanthropist, came to this country to lecture against the inhumanities attending the transportation of American cattle to England. That such inhumanities existed was notorious, and Mr. Plimsoll's crusade was greatly encouraged from selfish and interested motives by British stockmen who believed that the effect of the agitation would be unfavorable for the marketing of American cattle. A bill was quickly drawn at the Department after a consultation between members of Congress interested and the Department authorities. This was pushed through at the close of the session and approved on March 3, 1891. It placed the supervision of the cattle quarters of all vessels engaged in the trade under the control of the Secretary of Agriculture. So effectual did this legislation seem to be that Mr. Plimsoll was satisfied and gave up his self-imposed mission. The results have been found so satisfactory that insurance rates on cattle have been reduced from \$8 to \$1 per

head. Basing the calculation upon average annual shipments this represents a saving every year equal to three times the cost of the Bureau of Animal Industry and almost equal to the annual expenses of the entire Department.

**Texas fever.**—Texas fever among cattle was got under control. The disease had occasioned heavy losses and had baffled all efforts at prevention except by strict quarantine against Texas cattle at certain seasons and under certain conditions. Its appearance was attended with considerable mystery. Stockmen and veterinarians alike had been watching it closely for more than twenty years, and all were puzzled by some of the facts observed. The solution of the most important question in the connection is told in the report of the Bureau of Animal Industry for 1890, as follows: •

It has long been suspected by cattle owners that the appearance of the disease in Northern cattle was in some way connected with the ticks distributed by Southern cattle. This hypothesis has, however, been generally discredited by scientific men, and indeed the evidence in favor of it was very slight and intangible. It seemed, however, worthy of investigation, and the result has been to obtain indisputable evidence that the disease is produced by ticks from Southern cattle.

Ticks taken from Southern animals and placed upon pastures which could have been infected in no other way so infected these grounds that susceptible cattle placed upon them contracted the disease in the same length of time and were as seriously affected as were other susceptible cattle placed upon pastures in company with Southern cattle. Again, young ticks that were hatched from the eggs of large ticks picked from Southern cattle were placed upon susceptible animals and produced the disease.

**Establishment of the Weather Bureau.**—The Weather Bureau was established as a part of the Department service in 1891 by transfer of the work from the War Department. Prof. Mark W. Harrington was appointed chief and organized the new branch in its present quarters at Twenty-fourth and M streets NW., Washington, D. C. The necessary substations of the War Department Signal Service throughout the country were turned over to him. Six hundred new stations were added within a short time, bringing the total up to 1,200, and in three months the volunteer observers had increased to 2,200. Plans were made and put in execution as rapidly as possible for increasing the usefulness of the Bureau to commerce and agriculture by extending the system of frost and storm signals and otherwise reaching all classes of the people. Local forecast officials were appointed in more than twenty cities and they were directed to give out warnings for their localities based on their information as related to local conditions. The cost of the service for the first year was \$861,840.83.

**Experiments and Improvements.**—In the Fifty-first Congress \$70,000 was appropriated for irrigation experiments in the region from Dakota to Texas along the eastern base of the Rocky Mountains. Hundreds of artesian wells were sunk, and the problem of the use of the underflow was considered; though not investigated, and a report on the whole subject was made in 1892.

Experiments in sugar production were continued by the distribution of 15,000 packages of sugar-beet seed to 8,000 farmers and by the examination of varieties of sorghum with a view to securing that which would yield the largest amount of sugar. The experiments with beets were not successful chiefly because of a lack of care by farmers in cultivation and in taking samples for analysis.

The importation of parasite enemies of scale insects was begun, and the citrus-fruit groves of California were saved from threatened destruction by the scale pests through the successful introduction of the lady-bird (*Vedalia cardinalis*). An effort was also made to introduce parasites for the destruction of the Hessian fly.

Experiments in rain making by use of explosives in the arid regions were made under a special appropriation by Congress, but were unsuccessful.

The investigation of silk reeling was continued for a time, but in 1891 the experiments were discontinued. The industry was found hopeless except with constant aid. The destruction of live-forever as a troublesome weed in some of the Eastern States was accomplished by means of a parasitic fungus. Valuable botanical investigations were made, and 12,000 specimens were added to the herbarium.

#### SECRETARY MORTON'S ADMINISTRATION.

Hon. J. Sterling Morton became Secretary of Agriculture on March 7, 1893. The Congressional Directory issued soon after says:

"Julius Sterling Morton, of Nebraska City, Nebr., Secretary of Agriculture, was born April 27, 1832, in Jefferson County, N. Y.; is of Scotch-English origin, his ancestors coming to this country in the first vessel after the *Mayflower*, one of them, Nathaniel, being secretary of the colony; removed with his parents when 2 years of age to Michigan; was educated in the public schools of Albion, the State University at Ann Arbor, and Union College, from which latter institution he was graduated; was connected editorially with the Detroit Free Press and Chicago Times; located in Nebraska November 10, 1854, at Bellevue, and April 12 of the following year issued the first number of the Nebraska City News; was elected to the Territorial legislature and reelected in 1857; was appointed secretary to fill the vacancy caused by the death of Governor Thomas B. Cuming in 1858 and served till May, 1861; in 1860 was nominated for Congress and was given the certificate of election, but was unseated by contest; in 1866 was nominated for governor and was defeated by 145 votes, and has been the nominee of his party for that office three times since; has been the favorite candidate of his party several times for United States Senator; is a practical agriculturist and horticulturist, and has contributed largely to the best literature on those subjects; is the author of the Arbor Day legislation, which provides that one day in each year be made a public holiday and be devoted to tree planting, and

which has been adopted in forty-two States; was appointed Secretary of Agriculture by President Cleveland and confirmed March 6, and entered upon his duties March 7, 1893."

**Development and reorganization of work.**—The Secretary called attention in his first report to the need of a closer supervision of the State experiment stations and better control of the Federal money appropriated for them. In response a law was passed directing an inspection of the stations and their accounts of the use of Government money. This was welcomed by most of the station authorities and was accomplished with good results. The law gave the Secretary power to prescribe the form of annual statements and directed him to ascertain whether expenditures conformed to the requirements of the law of 1887.

Secretary Morton reorganized the Division of Illustrations as a section of the Division of Records and Editing. Subsequently the latter

became the Division of Publications, and the document and folding room was also reorganized and made a section of this division. During this administration, also, the first special appropriation was made for the printing and distribution of Farmers' Bulletins, with a provision that two-thirds of the total number of these bulletins printed are to be distributed by Members of Congress. The number of publications issued, which had increased 300 per cent during Secretary Rusk's administration, again increased over 200 per cent



J. STERLING MORTON,  
Secretary of Agriculture.  
1893-1897.

under Mr. Morton, while the increase in the aggregate number of copies printed was still greater. Considerable attention was given to enlarging the Department library, and the suggestion was made by Secretary Morton that the Librarian of Congress should transfer to the Department library one of the duplicate volumes furnished him under the copyright law whenever on agricultural subjects.

The Division of Statistics was organized into three sections, as follows: Compilation and foreign statistics; answers to Congressional inquiries and verification of agricultural statistics; records, files, and comparison of crop reports.

The Division of Agrostology was formed, and consular agents throughout the world were requested to send to the Department seeds of new forage plants whenever found. The Handbook of Grasses of the United States was its first important publication.

The Division of Soils was formed as part of the Weather Bureau.

The special ~~need for~~ it was in the demand for information in regard to the relation of soils to ~~meteorological~~ conditions. The Office of Road Inquiry was also established at this time in ~~answer to a general~~ demand for the study of public roads and their improvement. The development of the use of the bicycle contributed notably to this demand. The Division of Microscopy was abolished and its work distributed to the other divisions. A Dairy Division in the Bureau of Animal Industry was established on July 1, 1895, with H. E. Alvord as chief.

The special agents in Europe employed under the special appropriation for extending the demand in foreign markets for agricultural products of the United States were withdrawn, and a new departure made by the organization of a special section under the Secretary's personal direction for the collection and diffusion of information in regard to the requirements and productions of foreign countries.

The irrigation inquiries were brought to a close and the office discontinued.

**Columbian Exposition—Discoveries and advances.**—The Columbian Exposition came just at the beginning of this administration. The preparation of the Department exhibit had been placed in the hands of Assistant Secretary Willits under Secretary Rusk, and he was subsequently appointed by President Harrison chairman of the Government Board. He was continued in charge till the Exposition closed and the work was wound up. Of the total expenditures by the National Government for representation at this Exposition the Department's share, as reported by Mr. Willits, was \$131,707.71.

The Bureau of Animal Industry devoted considerable time to the study of Texas fever, sheep scab, and tuberculosis; the protection of human life from the dangers of tuberculous diseases was undertaken actively. Inspections of beef and milk were made for this purpose, and directions for the sterilization of milk were sent out for general information. It was at this time decided that inspectors in the Bureau service must pass a civil-service examination, and must be veterinary graduates.

The Weather Bureau made arrangements with the Mexican Government Observatory for exchange of data, and also established a cyclone service in the West Indies. The period covered by forecasts was considerably extended and large additions were made to the number and efficiency of weather observers.

Under the special appropriation for the purpose, nutrition investigations were undertaken in connection with the Office of Experiment Stations and under the direct supervision of W. O. Atwater.

Incidentally to these investigations large profits were disclosed in the baking and supply of bread. It was shown that while flour had fallen much in price bread had not changed, and for a time in many cities a reduction was secured in the price of the loaf.

A valuable discovery was made in the Forestry Division; viz, that

boxing the pine tree for turpentine does not injure the lumber. The knowledge of this fact is estimated to be worth \$2,000,000 to the timber interests. During the course of the timber-test work, the longleaf pine was found to be much stronger than had been previously supposed.

**Civil service and savings.**—Secretary Morton greatly encouraged the extension of civil-service regulations throughout the Department, and in two notable cases adopted the method of competitive examinations to fill important places which were expressly excepted. The number of persons in the classified service increased notably under him.

In his last report Secretary Morton makes the following summary showing the amounts saved by him from the appropriation bills:

“Thus there will have been covered back into the Treasury since March 7, 1893, two million sixty-six thousand six hundred and sixty-one dollars and nineteen cents (\$2,066,661.19) out of a total amount of eleven million one hundred and seventy-nine thousand four hundred and fifty-five dollars and forty-five cents (\$11,179,455.45) on hand and appropriated.”

Mr. Morton strongly recommended that the amount so saved be applied to the erection of a new and suitable building.

Secretary Morton was strongly opposed to the distribution of seeds, and recommended that the practice be abandoned. He succeeded in changing the method of distribution, so that the packages were no longer sent out from Washington by a force of Department employees, but from the warerooms of the seedsmen holding the contracts.

**Yearbook—Expositions—Assistant Secretary.**—Beginning with that of 1894, the form of the Annual Report of the Department was radically changed in accordance with the act governing the public printing and binding, approved January 12, 1895, so as to appear in two parts. The second and most important part is known as the Yearbook, and the first and two succeeding Yearbooks were edited by Dr. Charles W. Dabney, who had been appointed Assistant Secretary January 1, 1894, and like his predecessor, Mr. Willits, was specially charged with the supervision of the scientific work.

To the Columbian Exposition in Chicago succeeded an Interstate Exposition at Atlanta, Ga., in 1895, and an Exposition at Nashville, Tenn., in 1897. At both of these Dr. Dabney was the representative of the Department of Agriculture and was also appointed chairman of the Government Board.

#### COMMENCEMENT OF SECRETARY WILSON'S ADMINISTRATION.

Hon. James Wilson, of Iowa, became Secretary on March 7, 1897, by appointment from President McKinley.

On March 22, 1897, Col. J. H. Brigham, of Ohio, for several years master of the National Grange of the Patrons of Husbandry, was appointed Assistant Secretary.

**THE DEPARTMENT BUILDINGS AND GROUNDS.**

With the establishment of a new department of Government in 1862 it was expected that separate offices would be provided, but this was not done till six years later. Reservation 2, at Washington, D. C., a square of ground between Twelfth and Fourteenth streets SW., B street S. and the canal, containing about 40 acres, was given to Commissioner Newton as an experimental farm. The ground was broken, a supply of water was carried from the city waterworks, and considerable planting was done, but there was little building during his time.

**The main Department building.**—In 1867 Congress appropriated \$100,000 for the erection on the reservation of an office building for the Department. The contract was let to Francis Gibbons, jr., of Baltimore, and on September 1, 1868, the house was ready for occupancy. About the same time houses for use in the propagation of plants for distribution were erected, along with conservatories, and a grapery for tests of foreign grapes. The total cost of these buildings was \$140,000. The frontispiece of this bulletin shows the main edifice.

Afterwards some additions were made, but nothing considerable was done till after the Atlanta Exposition in 1881. The Centennial Exposition at Philadelphia added a large amount of material to the Department museum, but it was thought sufficient to provide space for this by putting up a gallery around the large room on the second floor of the main building. This was then occupied by the museum, as it is now by the library. But after the Atlanta Exposition other additions to the museum were made, and it was then found necessary to have more room. Accordingly \$10,000 was appropriated in 1881 for the construction of a building for its use. The bill called it a "building for display of agricultural implements." It was intended by Commissioner Le Duc that this should be of brick, and it was to be located some distance north of the southeast corner of the reservation. Excavations for the foundation were dug on this proposed site, but Mr. Le Duc was succeeded by Commissioner Loring and the plans were changed. The extreme southeast corner of the grounds was chosen, and the frame structure now used as a museum and for offices for several divisions of the Department was erected.

**Erection of smaller structures.**—Immediately after this an appropriation of \$25,000 for a building for the storage and distribution of seeds was made, and the brick structure just southeast of the main building was put up. It was occupied by the Seed Division on the first floor and the Division of Statistics on the second; but when, under Secretary Morton, the distribution of seed was taken away from Washington, the lower story of the building was given to the Divisions of Entomology and Biological Survey. In 1879 an appropriation of \$1,500 was made for the building of the stable and in 1883 \$2,500 for an additional greenhouse. In 1897 provision was made for the erection of a fire-proof building at a cost not to exceed \$3,000. This was put up near the south entrance

to the grounds at a cost of \$1,650.66. It furnishes safe storage for important books and records. The majority of the other structures on the ground were built by the carpenter, Mr. Halley, from the Department contingent fund. In all not more than \$210,000 appears to have been expended for the Department buildings.

When the main building was erected there were four divisions of the Department work, employing, all told, 50 persons. There are now employed at and near this original structure about 550 persons. They are accommodated, as far as possible, in the Government buildings, but for those that are crowded out, private houses are rented in the residence portion of the city adjacent, at an annual cost of \$4,020. This represents at least \$80,000, which might be economically applied to a new building.

**Weather Bureau—Department grounds.**—The buildings for the Weather Bureau at Twenty-fourth and M streets NW. were purchased, along with the site, in 1891 for \$112,000. Additions were made to adapt the place for its use at a cost of \$38,000. The grounds contain 54,000 square feet.

The reservation at Twelfth and B streets SW. continued to be used as an experimental garden till after the erection of the Department buildings. It was then agreed that for anything in the way of an experimental farm a much larger tract ought to be provided, and that Mr. Saunders, the Department horticulturist, should be directed to lay out and improve the grounds as an arboretum, to contain all the trees and shrubs which will grow without protection in this climate. They were to be grouped according to their families. The old canal was still in existence in front of the grounds and had to be filled. At the same time Mr. Saunders was converting the swampy reaches of the reservation into the present handsomely rolling grounds, covered with fine trees and surmounted at the front of the building by a terrace, with a beautiful display of flowers. The work of filling the canal and laying out and beautifying the grounds was completed in 1871.

#### **COST OF THE DEPARTMENT; ITS VALUE TO THE COUNTRY.**

The Department of Agriculture up to July 1, 1897, cost the people of the United States, all told, \$26,915,988. This is much less than \$500,000 a year. The question naturally presents itself: In what manner and to what extent has it made a return for this outlay? For in this respect does the Department of Agriculture differ from all the other departments of the Government; namely, that its services are more susceptible of being measured in actual money value. Its duties are not confined to the collection of taxes nor to police protection; it spreads information by which the people are better able to pay taxes and to develop their property and increase its value. About the time the work of the Department began it was necessary to import considerable quantities of agricultural products. This was partly due to bad crop seasons, but partly also to careless and ignorant methods of

culture. Fertilizers were little known, barnyard manure was still regarded in many places as a nuisance to be got rid of, and rotation of crops was little practiced. Planting according to the phases of the moon was still in vogue.

**Increase in cereals.**—The production of corn and wheat, shown by the census, affords some proof of the increasing effectiveness of cultivation and, by just inference, of the assistance given by the Department. In 1839 the production of corn was 23 bushels for each person in the United States; in 1859 it was 27 bushels; in 1889, 34 bushels. This does not of course show with certainty that there was a corresponding increase in the production for each acre cultivated, but a comparison of the crop of 1879 with that of 1889 sustains that inference. In 1879 there were 35 bushels of corn raised for every person in the country, in 1889 only 34 bushels, but the production per acre increased from 28.1 bushels in 1879 to 29.5 in 1889. It may be supposed that a similar increase in product per acre would be found for the other decades if a record of the acreage planted had been made.

The comparison of the production of wheat gives a similar result. The quantity raised for each person in 1839 was 5.3 bushels; in 1890 it was 7.4.

**Other manifest gains.**—Through its Division of Statistics the Department seeks to place in the hands of farmers such information as will enable them to estimate wisely the value of their crops and avoid deception and loss from speculative information spread abroad in the interest of buyers. Through the Bureau of Animal Industry it not only seeks to discover the causes and remedies of animal diseases, but also to maintain measures of control and prevention that will hinder the spread of contagion. Further, the diseases of plants are the subject of study of one division, and injurious insects receive the special attention of another. Also, the introduction of new and valuable economic plants has been a most important feature of Department work, and many improved varieties have resulted from its efforts.

Now, while it is manifestly impossible to express the results of all this work exactly in money returns, yet it is quite possible to do so in some cases, and in others to assure ourselves that they are too far-reaching and too great to be easily made the subject of exact reckoning. For instance, no one can venture upon an accurate estimate of the money saved to the country by the suppression and utter eradication of contagious pleuro-pneumonia by the Bureau of Animal Industry, nor of the value of the inspection of animals and meats by which European markets are kept open to these products; yet, as has already been stated, our actual saving, as the result of vessel inspection, is shown very closely by the reduction of the rate of insurance on export animals. This reduction saves in the aggregate over \$2,100,000 yearly. In like manner the money returns of the increased yield of sugar per ton of cane, secured through the Division of Chemistry, can be shown by actual calculation, but no one can estimate the value of the introduc-

tion of the beet-sugar industry and its gradual extension until the entire consumption of sugar in this country shall be met by a home supply. Still no one doubts, who knows anything about the subject, that any one of the services mentioned will return to the Government in money value, many times over the entire cost of the Department. Many instances have been supplied of carefully estimated savings effected by the remedies or prevention secured as a result of investigation by the Department both in the case of injurious insects and of plant diseases, but in the main the gains thus effected are quite beyond calculation.

Who, for instance, can estimate the value of the rescue from annihilation of the California orange industry through the introduction of the Australian parasite of the scale insect which was devastating the citrus orchards in that State? Equally beyond accurate estimate is the value of the introduction of the Bahia or navel orange by the horticulturist of the Department, Mr. William Saunders.

Specific examples of money saved through the warnings of the Weather Bureau are numerous and easily established. In 1894 the Weather Bureau, by its warnings, saved from the rocks, at the entrance of Chesapeake Bay, the ship *Rappahanock*, with a cargo worth over \$600,000. Furthermore, it is estimated that in the fall of that year 2,305 vessels, valued at \$36,283,913, but for the Weather Bureau warnings would have put to sea in approaching storms and heavy losses would have followed.

Frequently throughout the year minor savings, through the services of this Bureau, are reported from all sections of the country, aggregating a sum far in excess of its annual expenditures.

The discovery by the Division of Forestry of the real value of pine-tree timber, after the trees had been boxed for turpentine, has been estimated by reliable authorities as worth not less than \$2,000,000 to the Southern States.

**Secretary Rusk's estimate.**—Instances of the money value of services actually rendered by the Department might be enumerated indefinitely. Ample and sufficient grounds exist for the confidence that the new work undertaken from year to year will result in valuable returns in the future similar to those instanced. One-tenth has not been told, but enough has been said, without touching at all on the work of many of the divisions of the Department, to justify to the most skeptical the statement of a former Secretary, the Hon. J. M. Rusk, who, in his annual report for 1891, said:

“In concluding the review of the work done under the several divisions of this Department since the date of my last annual report, it gives me pleasure to state, and I say this advisedly, that each one of more than a dozen divisions whose work I have reviewed has returned in actual value to the country during the past year far more than the entire annual appropriation accorded to this Department.”

## BUREAUS, DIVISIONS, AND OFFICES.

The bureaus, offices, and divisions of the Department as now organized are as follows:

### THE WEATHER BUREAU.

The Weather Bureau had its origin in the publication by the Department, beginning in 1863, of meteorological data gathered by the Smithsonian Institution, and in the recommendation by Commissioner Newton, the first Commissioner of Agriculture, that daily weather reports by telegraph, under the direction of the Government, be distributed to the country. This service was authorized by an act of Congress of February 4, 1870, and was conducted by the Chief Signal Officer of the Army for twenty years. By the act of October 1, 1890, the Weather Bureau as such was officially recognized, and was transferred to the Department of Agriculture, the general details of its organization being defined in that act. On July 1, 1891, the actual transfer took place.

The duties of the Weather Bureau are the forecasting of the weather, issue of storm warnings, display of weather and flood signals for the benefit of agriculture, commerce, and navigation; the gauging and reporting of rivers, the maintenance and operation of seacoast telegraph lines, and the collection and transmission of marine intelligence for the benefit of commerce and navigation; the reporting of temperature and rainfall conditions for the cotton, sugar, rice, and other interests; the display of frost and cold-wave signals; the distribution of meteorological information in the interests of agriculture and commerce, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential to the proper execution of the foregoing duties.

The Bureau now has 150 fully equipped meteorological stations; 253 stations specially equipped for the display of danger warnings to mariners; 261 stations for the taking of telegraphic reports of temperature and rainfall in the growing fields, and over 3,000 stations where voluntary observers make records of temperature and rainfall with standard instruments. Mark W. Harrington was the first chief, and was succeeded on July 1, 1895, by Willis L. Moore, the present chief.

### BUREAU OF ANIMAL INDUSTRY.

The Bureau of Animal Industry, established in 1884, now comprises subdivisions as follows: Inspection division, miscellaneous division, pathological division, biochemic division, zoological laboratory, dairy

division, experiment station. Its duties are to make investigations as to the existence of contagious pleuro-pneumonia, and other dangerous communicable diseases of live stock; to make original investigations as to the nature and prevention of such diseases, and to superintend measures for their extirpation; and to report on the condition and means of improving the animal industries of the country. The Bureau also has charge of the inspection of import and export animals, of the inspection of vessels for the transportation of export animals, and of the quarantine stations for imported neat cattle; supervises the interstate movement of cattle; and inspects live stock and their products slaughtered for food consumption. D. E. Salmon has been chief of the Bureau since its organization; appointed May 31, 1884.

#### DIVISION OF GARDENS AND GROUNDS.

The propagating garden, started in 1858, was turned over by the Commissioner of Patents to the Department of Agriculture shortly after the creation of the Department in May, 1862, and the Division of Gardens and Grounds was organized as an experimental garden by the appointment of Mr. William Saunders, of Pennsylvania, as horticulturist superintendent, in September, 1862. The superintendent is charged with the care of keeping the lawns and other ornamentations of the park, and with all duties connected with the introduction and propagation of desirable economic plants, and their dissemination in suitable climates throughout the States.

William Saunders has been superintendent since the establishment of the division, thirty-six years ago, and is the only person now connected with the Department who was appointed by the first Commissioner. After the reservation now occupied by the Department was secured, he furnished the plans for the laying out of the grounds, and the conservatories and other buildings were erected under his direction. The present superintendent has been from the first intimately connected with the organization of the Department. For over twenty years he served as vegetable physiologist, pomologist, and adviser on all matters relating to soils and soil culture, and farms and gardens and everything pertaining thereto, performing duties on matters which are now conducted by divisions specially formed for the purpose.

#### DIVISION OF CHEMISTRY.

The Division of Chemistry, established in 1862, makes investigations of the methods proposed for the analysis of soils, fertilizers, and agricultural products and such analyses as pertain in general to the interests of agriculture. It also conducts researches on all subjects in which chemistry and agriculture are conjoined. The study of the composition of human foods and their adulterations is one of the chief functions of this division. It can not undertake the analyses of articles of a miscellaneous nature, but application for such analyses should be made to the directors of agricultural experiment stations of the different States.

The division does not make assays of ores nor analyses of minerals, except when related to general agricultural interests; nor analyses of water. The successive chiefs have been C. M. Wetherill, Henry Erni, Thomas Antisell, R. T. Brown, William McMurtrie, and Peter Collier. The present chief is H. W. Wiley, who was appointed April 9, 1883.

#### DIVISION OF ENTOMOLOGY.

The Division of Entomology, organized in 1863, conducts investigations concerning injurious and beneficial insects; disseminates information regarding the results of these investigations and the best remedies to be used against injurious insects, by means of correspondence, circulars, bulletins and reports; prepares specimens for illustrative and museum purposes; and in general acts as a bureau of information on all matters relating to economic entomology. The chiefs have been Townend Glover, C. V. Riley, J. H. Comstock, and C. V. Riley. L. O. Howard is the present chief, appointed June 1, 1894.

#### DIVISION OF STATISTICS.

The Division of Statistics, established in 1863, collects information as to the condition, prospects, and harvests of the principal crops, and of the numbers and status of farm animals through a corps of county correspondents, and with the aid of a supplementary organization under the direction of State agents. It obtains similar information from European countries monthly through the deputy consul-general at London, assisted by consular, agricultural, and commercial authorities. It records and tabulates and coordinates statistics of agricultural production, distribution, and consumption, the authorized data of governments, institutes, societies, boards of trade, and individual experts; and writes, edits, and publishes a monthly bulletin for the use of editors and writers, and for the information of producers and consumers, and for their protection against combination and extortion in the handling of the products of agriculture. Former chiefs have been Lewis Bollman, J. R. Dodge, Charles Worthington, J. R. Dodge (reappointed), and Henry A. Robinson; John Hyde, the present chief, was appointed August 1, 1897.

#### DIVISION OF BOTANY.

The Division of Botany was established in March, 1869. It maintained the United States National Herbarium until July 1, 1896, when that work was transferred to the Smithsonian Institution. The chief of the division, however, continues to have charge and the specimens are used by his assistants. The division now publishes information of the treatment of weeds, experiments with poisonous and medicinal plants, tests seeds with a view to their increased purity and commercial value, and investigates other questions of economic botany. The chiefs have been C. C. Parry, and George Vasey. The present chief is Frederick V. Coville, appointed March 9, 1893.

## DIVISION OF ACCOUNTS AND DISBURSEMENTS.

The Division of Accounts and Disbursements, established July 1, 1880, audits and pays all accounts and adjusts claims against the Department; decides questions involving the expenditure of public funds; prepares advertisements, schedules, contracts for annual supplies, leases and agreements; issues requisitions for the purchase of supplies, requests for passenger and freight transportation; prepares the annual estimates of appropriations, and attends to all other business relating to the financial interests of the Department. B. F. Fuller, deceased, was the first chief. Frank L. Evans, the present chief, was appointed July 13, 1893.

## DIVISION OF FORESTRY.

The Division of Forestry, organized by order of the Commissioner in 1881, and reorganized by Congress as a division in 1886, is occupied with experiments, investigations, and reports dealing with the subject of forestry, and with the dissemination of information upon forestry matters. N. H. Egleston was the first chief, followed by B. E. Fernow, the present chief, who was appointed March 15, 1886.

## DIVISION OF BIOLOGICAL SURVEY.

The Division of Biological Survey (established as the Division of Ornithology and Mammalogy in 1886) studies the distribution of animals and plants, and maps the natural life zones of the country; it also investigates the economic relations of birds and mammals, and recommends measures for the preservation of beneficial and the destruction of injurious species. C. Hart Merriam has been the only chief—appointed July 1, 1886, as chief of the Division of Ornithology and Mammalogy, and July 1, 1896, as chief of the Biological Survey.

## DIVISION OF POMOLOGY.

The Division of Pomology, established in 1886, collects and distributes information in regard to the fruit interests of the United States, investigates the habits and peculiar qualities of fruits, their adaptability to various soils and climates, and conditions of culture, and introduces new and untried fruits from foreign countries. The chiefs have been H. E. Van Deman, S. B. Heiges, with W. A. Taylor, the assistant in charge for seven months. G. B. Brackett, the present chief, was appointed August 1, 1897.

## DIVISION OF VEGETABLE PHYSIOLOGY AND PATHOLOGY.

This division was originally established in 1886 as a section of mycology in the Division of Botany under F. Lamson-Scribner; the following year it was changed to a section of vegetable pathology, and in 1891 became a separate division. In 1895 the scope of its work was enlarged and name altered to Division of Vegetable Physiology and Pathology.

The division has for its object a study of normal and abnormal life processes of plants. It seeks by means of both field and laboratory investigations in plant physiology, plant breeding and selection, and the morphology and classification of fungi, to determine the causes and methods of prevention of plant diseases, the amelioration of economic plants, and rational methods of growing commercial crops. B. T. Galloway, the present chief, was appointed chief of the section of vegetable pathology November 1, 1888, and August 8, 1894, was made chief of the division as it now exists.

#### OFFICE OF EXPERIMENT STATIONS.

The Office of Experiment Stations, established in 1888, represents the Department in its relation to the experiment stations, which are now in operation in all the States and Territories. It seeks to promote the interests of agricultural education and investigations throughout the United States. It collects and disseminates general information regarding the colleges and stations, and publishes accounts of agricultural investigations at home and abroad. It also indicates lines of inquiry, aids in the conduct of cooperative experiments, reports upon the expenditures and work of the stations, and in general furnishes them with such advice and assistance as will best promote the purposes for which they were established. It is also charged with the investigation of the nutritive value and economy of human food. The directors have been W. O. Atwater and A. W. Harris. A. C. True is the present director, appointed September 26, 1893.

#### OFFICE OF FIBER INVESTIGATIONS.

Fiber investigations were begun in the Division of Statistics in 1889, and in 1890 the Office of Fiber Investigations was established. It collects and disseminates information regarding the cultivation of textile plants, directs experiments in the culture of new and hitherto unused plants, purchases seed and plants for limited distribution for experimental purposes, and investigates the merit of new machines and processes for extracting the fiber and preparing it for manufacture. Chas. Richards Dodge has been special agent from the beginning, and his appointment as special agent in charge of the office dates from January 1, 1891.

#### DIVISION OF PUBLICATIONS.

The Division of Publications was established in 1889 as a section of the Division of Statistics, which had originally been charged with the work of editing the Department reports. In 1890 it was organized and separately appropriated for as the Division of Records and Editing, becoming the Division of Publications in 1895. This division has entire supervision of the editing, printing, and publishing of the Department, and the distribution of all publications, being especially charged, fur-

thermore, with the preparation, publication, and distribution of Farmers' Bulletins. The division issues advance notices and a monthly list of publications, and prepares for publication any information of special interest to agriculturists. George William Hill was appointed editor July 8, 1889, and has been the chief of the division since its organization; appointed July 14, 1890.

#### OFFICE OF ROAD INQUIRY.

The Office of Road Inquiry, established in 1893, collects information concerning the system of road management throughout the United States, conducts investigations into methods of road making, directs the building of sample roads at the agricultural colleges and experiment stations, and prepares publications on the subject of roads and road laws. Roy Stone has been at the head of the office since its organization, first as special agent and engineer, and since October 3, 1893, as director.

#### DIVISION OF AGROSTOLOGY.

The Division of Agrostology, formerly in the Division of Botany, was established as an independent division July 1, 1895, under the present chief F. Lamson-Scribner. It is charged with the investigations of the natural history, geographical distribution, and uses of grasses and forage plants, their adaptation to special soils and climates, the introduction of promising native and foreign kinds into cultivation, and the preparation of publications and correspondence relative to these plants. F. Lamson-Scribner has been in charge of the division since its organization, becoming chief July 1, 1895.

#### DIVISION OF SOILS.

The Division of Soils (formerly Division of Agricultural Soils in the Weather Bureau) was established as an independent division of the Department in 1894. It has for its object the investigation of the texture and other physical properties of soils and their relation to crop production. Milton Whitney, who has been in charge of the division since its organization, was appointed chief July 1, 1895.

#### SECTION OF FOREIGN MARKETS.

The Section of Foreign Markets was instituted March 20, 1894, under a clause in the act of appropriations for the Department of Agriculture setting aside \$10,000 for the purpose of making "investigations concerning the feasibility of extending the demands of foreign markets for the agricultural products of the United States." The work of the section consists chiefly in the preparation of bulletins and circulars designed to convey information regarding such opportunities as exist for the extension of our export trade in American farm products.

W. B. Nassau, deceased, was the first chief. The present chief, Frank H. Hitchcock, was appointed January 9, 1897.

#### LIBRARY.

The library of the Department was first officially recognized by the appointment of J. B. Russell as librarian in 1871. The collection of books had its origin in the transfer in 1869 of the works on agriculture from the library of the Patent Office. Additions have been made from time to time by exchange and purchase. The library now contains 58,000 volumes, and is undoubtedly the best separate collection on agriculture and allied subjects in the United States—probably the best in the world. It comprises complete sets of State agricultural publications and files of many of the agricultural journals from the beginning; a large collection of the official reports on agricultural subjects issued by foreign governments; important collections in botany, horticulture, forestry, zoology, and entomology; numerous sets of scientific serials; a well-selected collection of encyclopedias, atlases, and other general reference works, and a small collection of biography, history, and general literature. A quarterly list of the additions to the library is published, and several lists of books on agricultural subjects have been issued. Succeeding Mr. Russell as librarian, Mrs. Ernestine H. Stevens served from November 1, 1877. The present librarian, William Parker Cutter, was appointed August 28, 1893.

#### THE MUSEUM.

The museum had its beginning in the old agricultural bureau of the Patent Office, the nucleus of the collection being a large series of fruit models and stuffed birds, the work of Prof. Townend Glover, of that Bureau. When the Department of Agriculture was organized, in 1862, Mr. Glover became its entomologist, and the museum was established under him in 1864 as a recognized institution. From this time forward its collections were steadily increased by donations and purchases, and when the plans were being drawn for a separate building for the Department of Agriculture, the large hall now used for the library was planned, to be devoted to museum purposes. The building was occupied about the beginning of 1868, and the museum moved from the Patent Office. About this time the Glover collection of fruit models, birds, and insects was purchased by a special appropriation of \$10,000, the Government having had the loan of it for over ten years. Professor Glover was assisted in the museum work at the time by the assistant entomologist, Mr. Charles Richards Dodge, who, after 1870, had practical charge of the museum until 1878.

The valuable collections secured from foreign governments at the close of the Centennial Exposition necessitated the erection of galleries on either side of the museum hall, upon which the new material was arranged in 1877. After that year, Professor Glover and Mr. Dodge

having retired from the Department, the museum was placed in charge of Dr. Vasey, the botanist, who remained in charge until it was transferred to the museum building, in the southeast corner of the Agricultural grounds, erected to make room for additions at the close of the first Atlanta Exposition. Subsequent to removal, Prof. Spencer F. Baird, Secretary of the Smithsonian Institution, as the lawful custodian of all Government collections, transferred to the National Museum for safe-keeping some of the more valuable exhibits in its possession. This was under the law which gives the National Museum complete control over all Government museums.

The first curator of the Museum was Robert G. Blaine. His successors have been H. R. Branham, Nathaniel Shatswell, James M. Watt, and Nathaniel Shatswell, reappointed.

## LEGISLATION AND EXPENSES.

### LAW CREATING THE DEPARTMENT OF AGRICULTURE.

The Department of Agriculture was established by an act of Congress approved by President Lincoln, May 15, 1862. The full text of the act is as follows:

AN ACT to establish a Department of Agriculture.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That there is hereby established at the seat of the government of the United States a Department of Agriculture, the general designs and duties of which shall be to acquire and to diffuse among the people of the United States useful information on subjects connected with agriculture in the most general and comprehensive sense of that word, and to procure, propagate, and distribute among the people new and valuable seeds and plants.

SEC. 2. *And be it further enacted,* That there shall be appointed by the President, by and with the advice and consent of the Senate, a "Commissioner of Agriculture," who shall be the Chief Executive officer of the Department of Agriculture, who shall hold his office by a tenure similar to that of other civil officers appointed by the President, and who shall receive for his compensation a salary of three thousand dollars per annum.

SEC. 3. *And be it further enacted,* That it shall be the duty of the Commissioner of Agriculture to acquire and preserve in his Department all information concerning agriculture which he can obtain by means of books and correspondence and by practical and scientific experiments (accurate records of which experiments shall be kept in his office), by the collection of statistics, and by any other appropriate means within his power; to collect, as he may be able, new and valuable seeds and plants; to test by cultivation the value of such of them as may require such tests; to propagate such as may be worthy of propagation, and to distribute them among agriculturists. He shall annually make a general report in writing of his acts to the President and to Congress, in which he may recommend the publication of papers forming parts of or accompanying his report, which report shall also contain an account of all moneys received and expended by him. He shall also make special reports on particular subjects whenever required to do so by the President or either House of Congress, or when he shall think the subject in his charge requires it. He shall receive and have charge of all the property of the agricultural division of the Patent Office in the Department of the Interior, including the fixtures and property of the propagating garden. He shall direct and superintend the expenditure of all money appropriated by Congress to the Department and render accounts thereof, and also of all money heretofore appropriated for agriculture and remaining unexpended. And said Commissioner may send and receive through the mails, free of charge, all communications and other matter pertaining to the business of his Department, not exceeding in weight 32 ounces.

SEC. 4. *And be it further enacted,* That the Commissioner of Agriculture shall

appoint a chief clerk, with a salary of two thousand dollars, who in all cases during the necessary absence of the Commissioner, or when the said principal office shall become vacant, shall perform the duties of Commissioner, and he shall appoint such other employees as Congress may from time to time provide, with salaries corresponding to the salaries of similar officers in other departments of the Government; and he shall, as Congress may from time to time provide, employ other persons, for such time as their services may be needed, including chemists, botanists, entomologists, and other persons skilled in the natural sciences pertaining to agriculture. And the said Commissioner, and every other person to be appointed in the said Department, shall, before he enters upon the duties of his office or appointment, make oath or affirmation truly and faithfully to execute the trust committed to him. And the said Commissioner and the chief clerk shall also, before entering upon their duties, severally give bonds with sureties to the Treasurer of the United States, the former in the sum of ten thousand dollars and the latter in the sum of five thousand dollars, conditional to render a true and faithful account to him or his successor in office quarter-yearly accounts of all moneys which shall be by them received by virtue of the said office, with sureties to be approved as sufficient by the Solicitor of the Treasury; which bonds shall be filed in the office of the First Comptroller of the Treasury, to be by him put in suit upon any breach of the conditions thereof.

Approved May 15, 1862.

#### CHANGE IN RANK OF THE DEPARTMENT.

The Department was made an Executive office of the first rank under the law approved by President Cleveland February 9, 1889. By that act the title of the head of the Department was changed from Commissioner to Secretary, and he became a member of the President's Cabinet.

AN ACT to enlarge the powers and duties of the Department of Agriculture and to create an Executive Department to be known as the Department of Agriculture.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Department of Agriculture be an Executive Department under the supervision and control of the Secretary of Agriculture, who shall be appointed by the President, by and with the advice and consent of the Senate; and section one hundred and fifty-eight of the Revised Statutes is hereby amended to include such Department, and the provisions of title four of the Revised Statutes, including all amendments thereto, are hereby made applicable to said Department.

SEC. 2. That there shall be in said Department an Assistant Secretary of Agriculture, to be appointed by the President, by and with the advice and consent of the Senate, who shall perform such duties as may be required by law or prescribed by the Secretary.

SEC. 3. That the Secretary of Agriculture shall receive the same salary as is paid to the Secretary of each of the Executive Departments and the salary of the Assistant Secretary of Agriculture shall be the same as that now paid to the First Assistant Secretary of the Department of the Interior.

SEC. 4. That all laws and parts of laws relating to the Department of Agriculture now in existence, as far as the same are applicable and not in conflict with this act, and only so far, are continued in full force and effect.

Approved, February 9, 1889.

Several other changes have been made in the law, including an amendment which repeals the requirement that the Commissioner (Secretary) and chief clerk give bond. Neither is now charged with any government property or money.

**LAW CREATING THE BUREAU OF ANIMAL INDUSTRY.**

The Bureau of Animal Industry was established as an integral branch of Department activity by a law approved on May 29, 1884. The text of that law is as follows:

AN ACT for the establishment of a Bureau of Animal Industry, to prevent the exportation of diseased cattle, and to provide means for the suppression and extirpation of pleuro-pneumonia and other contagious diseases among domestic animals.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Commissioner of Agriculture shall organize in his department a Bureau of Animal Industry, and shall appoint a chief thereof, who shall be a competent veterinary surgeon, and whose duty it shall be to investigate and report upon the condition of the domestic animals of the United States, their protection and use, and also inquire into and report the causes of contagious, infectious, and communicable diseases among them, and the means for the prevention and cure of the same, and to collect such information on these subjects as shall be valuable to the agricultural and commercial interests of the country; and the Commissioner of Agriculture is hereby authorized to employ a force sufficient for this purpose, not to exceed twenty persons at any one time. The salary of the chief of said bureau shall be three thousand dollars per annum; and the Commissioner shall appoint a clerk for said bureau, with a salary of one thousand five hundred dollars per annum.

SEC. 2. That the Commissioner of Agriculture is authorized to appoint two competent agents, who shall be practical stock raisers or experienced business men familiar with questions pertaining to commercial transactions in live stock, whose duty it shall be, under the instructions of the Commissioner of Agriculture, to examine and report upon the best methods of treating, transporting, and caring for animals, and the means to be adopted for the suppression and extirpation of contagious pleuro-pneumonia, and to provide against the spread of other dangerous contagious, infectious, and communicable diseases. The compensation of said agents shall be at the rate of ten dollars per diem, with all necessary expenses, while engaged in the actual performance of their duties under this act when absent from their usual place of business or residence as such agent.

SEC. 3. That it shall be the duty of the Commissioner of Agriculture to prepare such rules and regulations as he may deem necessary for the speedy and effectual suppression and extirpation of said diseases, and to certify such rules and regulations to the executive authority of each State and Territory, and invite said authorities to cooperate in the execution and enforcement of this act. Whenever the plans and methods of the Commissioner of Agriculture shall be accepted by any State or Territory in which pleuro-pneumonia or other contagious, infectious, or communicable disease is declared to exist, or such State or Territory shall have adopted plans and methods for the suppression and extirpation of said diseases, and such plans and methods shall be accepted by the Commissioner of Agriculture, and whenever the governor of a State or other properly constituted authorities signify their readiness to cooperate for the extinction of any contagious, infectious, or communicable disease in conformity with the provisions of this act, the Commissioner of Agriculture is hereby authorized to expend so much of the money appropriated by this act as may be necessary in such investigations, and in such disinfection and quarantine measures as may be necessary to prevent the spread of the disease from one State or Territory into another.

SEC. 4. That in order to promote the exportation of live stock from the United States the Commissioner of Agriculture shall make special investigation as to the existence of pleuro-pneumonia, or any contagious, infectious, or communicable disease, along the dividing lines between the United States and foreign countries, and along the lines of transportation from all parts of the United States to ports from

which live stock are exported, and make report of the results of such investigation to the Secretary of the Treasury, who shall, from time to time, establish such regulations concerning the exportation and transportation of live stock as the results of said investigations may require.

SEC. 5. That to prevent the exportation from any port of the United States to any port in a foreign country, of live stock affected with any contagious, infectious, or communicable disease, and especially pleuro-pneumonia, the Secretary of the Treasury be, and he is hereby, authorized to take such steps and adopt such measures not inconsistent with the provisions of this act, as he may deem necessary.

SEC. 6. That no railroad company within the United States, or the owners or masters of any steam or sailing or other vessel or boat, shall receive for transportation or transport, from one State or Territory to another, or from any State into the District of Columbia, or from the District into any State, any live stock affected with any contagious, infectious, or communicable disease, and especially the disease known as pleuro-pneumonia; nor shall any person, company, or corporation deliver for transportation to any railroad company, or master or owner of any boat or vessel, any live stock, knowing them to be affected with any contagious, infectious, or communicable disease; nor shall any person, company, or corporation drive on foot or transport in private conveyance from one State or Territory to another, or from any State into the District of Columbia, or from the District into any State, any live stock, knowing them to be affected with any contagious, infectious, or communicable disease, and especially the disease known as pleuro-pneumonia: *Provided*, That the so-called splenic or Texas fever shall not be considered a contagious, infectious, or communicable disease within the meaning of sections four, five, six and seven of this act, as to cattle being transported by rail to market for slaughter, when the same are unloaded only to be fed and watered in lots on the way thereto.

SEC. 7. That it shall be the duty of the Commissioner of Agriculture to notify, in writing, the proper officials or agents of any railroad, steamboat, or other transportation company doing business in or through any infected locality, and by publication in such newspapers as he may select, of the existence of said contagion; and any person or persons operating any such railroad, or master or owner of any boat or vessel, or owner or custodian of or person having control over such cattle or other live stock within such infected district, who shall knowingly violate the provisions of section six of this act, shall be guilty of a misdemeanor, and, upon conviction, shall be punished by a fine of not less than one hundred nor more than five thousand dollars, or by imprisonment for not more than one year, or by both such fine and imprisonment.

SEC. 8. That whenever any contagious, infectious, or communicable disease affecting domestic animals, and especially the disease known as pleuro-pneumonia, shall be brought into or shall break out in the District of Columbia, it shall be the duty of the Commissioners of said District to take measures to suppress the same promptly and to prevent the same from spreading; and for this purpose the said Commissioners are hereby empowered to order and require that any premises, farm, or farms where such disease exists, or has existed, be put in quarantine; to order all or any animals coming into the District to be detained at any place or places for the purpose of inspection and examination; to prescribe regulations for and to require the destruction of animals affected with contagious, infectious, or communicable disease, and for the proper disposition of their hides and carcasses; to prescribe regulations for disinfection, and such other regulations as they may deem necessary to prevent infection or contagion being communicated, and shall report to the Commissioner of Agriculture whatever they may do in pursuance of the provisions of this section.

SEC. 9. That it shall be the duty of the several United States district attorneys to prosecute all violations of this act which shall be brought to their notice or knowledge by any person making the complaint under oath; and the same shall be heard

before any district or circuit court of the United States or Territorial court holden within the district in which the violation of this act has been committed.

SEC. 10. That the sum of one hundred and fifty thousand dollars, to be immediately available, or so much thereof as may be necessary, is hereby appropriated, out of any moneys in the Treasury not otherwise appropriated, to carry into effect the provisions of this act.

SEC. 11. That the Commissioner of Agriculture shall report annually to Congress, at the commencement of each session, a list of the names of all persons employed, an itemized statement of all expenditures under this act, and full particulars of the means adopted and carried into effect for the suppression of contagious, infectious, or communicable diseases among domestic animals.

Approved, May 29, 1884.

#### TRANSFER OF WEATHER BUREAU TO THE DEPARTMENT.

The Weather Bureau was transferred from the War Department to the Department of Agriculture under a law approved October 1, 1890. The principal sections of this law are given here.

AN ACT to increase the efficiency and reduce the expenses of the Signal Corps of the Army, and to transfer the weather service to the Department of Agriculture.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That the civilian duties now performed by the Signal Corps of the Army shall hereafter devolve upon a bureau to be known as the Weather Bureau, which, on and after July first, eighteen hundred and ninety-one, shall be established in and attached to the Department of Agriculture, and the Signal Corps of the Army shall remain a part of the military establishment under the direction of the Secretary of War, and all estimates for its support shall be included with other estimates for the support of the military establishment.

\* \* \* \* \*

SEC. 3. That the Chief of the Weather Bureau, under the direction of the Secretary of Agriculture, on and after July first, eighteen hundred and ninety-one, shall have charge of the forecasting of weather, the issue of storm warnings, the display of weather and flood signals for the benefit of agriculture, commerce, and navigation, the gauging and reporting of rivers, the maintenance and operation of sea-coast telegraph lines and the collection and transmission of marine intelligence for the benefit of commerce and navigation, the reporting of temperature and rain-fall conditions for the cotton interests, the display of frost and cold-wave signals, the distribution of meteorological information in the interests of agriculture and commerce, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential for the proper execution of the foregoing duties.

SEC. 4. That the Weather Bureau shall hereafter consist of one Chief of Weather Bureau and such civilian employees as Congress may annually provide for and as may be necessary to properly perform the duties devolving on said bureau by law, and the chief of said bureau shall receive an annual compensation of four thousand five hundred dollars, and be appointed by the President, by and with the advice and consent of the Senate: *Provided*, That the Chief Signal Officer of the Army may, in the discretion of the President, be detailed to take charge of said bureau, and in like manner other officers of the Army, not exceeding four, expert in the duties of the weather service, may be assigned to duty with the Weather Bureau, and while so serving shall receive the pay and allowances to which they are entitled by law.

SEC. 5. That the enlisted force of the Signal Corps, excepting those hereinafter provided for, shall be honorably discharged from the Army on June thirtieth, eighteen hundred and ninety-one, and such portion of this entire force, including the civilian

## 46 HISTORICAL SKETCH OF DEPARTMENT OF AGRICULTURE.

employees of the Signal Service, as may be necessary for the proper performance of the duties of the Weather Bureau, shall, if they so elect, be transferred to the Department of Agriculture, and the compensation of the force so transferred shall continue as it shall be in the Signal Service on June thirtieth, eighteen hundred and ninety-one, until otherwise provided by law: *Provided*, That skilled observers serving in the Signal Service at said date shall be entitled to preference over other persons not in the Signal Service for appointment in the Weather Bureau to places for which they may be properly qualified until the expiration of the time for which they last enlisted.

SEC. 9. That on and after July first, eighteen hundred and ninety-one, the appropriations for the support of the Signal Corps of the Army shall be made with those of other staff corps of the Army, and the appropriations for the support of the Weather Bureau shall be made with those of the other bureaus of the Department of Agriculture, and it shall be the duty of the Secretary of Agriculture to prepare future estimates for the Weather Bureau which shall be hereafter specially developed and extended in the interests of agriculture.

Approved October 1, 1890.

---

### LAW FOR DOCUMENTS AND PRINTING.

The provisions of act of July 12, 1895, relating to public printing and binding, affecting the Department of Agriculture, are as follows:

SEC. 67. All documents at present remaining in charge of the several Executive Departments, bureaus, and offices of the Government not required for official use shall be delivered to the superintendent of documents, and hereafter all public documents accumulating in said Departments, bureaus, and offices not needed for official use shall be annually turned over to the superintendent of documents for distribution or sale.

SEC. 73. \* \* \* The Annual Report of the Secretary of Agriculture shall hereafter be submitted and printed in two parts, as follows: Part one, which shall contain purely business and executive matter which it is necessary for the Secretary to submit to the President and Congress; part two, which shall contain such reports from the different bureaus and divisions, and such papers prepared by their special agents, accompanied by suitable illustrations as shall, in the opinion of the Secretary, be specially suited to interest and instruct the farmers of the country, and to include a general report of the operations of the Department for their information. There shall be printed of part one, one thousand copies for the Senate, two thousand copies for the House, and three thousand copies for the Department of Agriculture; and of part two, one hundred and ten thousand copies for the use of the Senate, three hundred and sixty thousand copies for the use of the House of Representatives, and thirty thousand copies for the use of the Department of Agriculture. The illustrations for the same will be executed under the supervision of the Public Printer, in accordance with directions of the joint committee on printing, said illustrations to be subject to the approval of the Secretary of Agriculture. \* \* \*

Of the Report of the Bureau of Animal Industry, thirty thousand copies, of which seven thousand shall be for the Senate, fourteen thousand for the House, and nine thousand for distribution by the Agricultural Department.

Of the Annual Report of the Chief of the Weather Bureau, four thousand copies; one thousand copies for the Senate, two thousand copies for the House, and one thousand copies for the Bureau.





HON. WILLIAM H. HATCH.

(Father of Agricultural Experiment Stations. Died December 24, 1896.)



SENATOR JUSTIN S. MORRILL.

(Father of the Agricultural and Mechanical Colleges.)

## LANDS FOR AGRICULTURAL COLLEGES.

The day following the establishment of the Department the law granting public lands for the establishment of agricultural colleges was approved by President Lincoln. The original bill for this purpose was introduced in the House in 1857 by Hon. Justin S. Morrill. It was passed, but was vetoed by President Buchanan. In December, 1861, Mr. Morrill introduced his bill again, but on May 2, 1862, Senator Wade offered a similar bill in the Senate, and in June it passed both houses.

The act passed through the efforts of Hon. William Hatch, the Morrill law of 1890 (p. 50), and this act constitute the largest Government aid to education in the history of this country.

[Act of July 2, 1862.]

AN ACT donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That there be granted to the several States, for the purposes hereinafter mentioned, an amount of public land, to be apportioned to each State a quantity equal to thirty thousand acres for each Senator and Representative in Congress to which the States are respectively entitled by the apportionment under the census of eighteen hundred and sixty: *Provided,* That no mineral lands shall be selected or purchased under the provisions of this act.

SEC. 2. That the land aforesaid, after being surveyed, shall be apportioned to the several States in sections or subdivisions of sections, not less than one-quarter of a section; and whenever there are public lands in a State subject to sale at private entry at one dollar and twenty-five cents per acre, the quantity to which said State shall be entitled shall be selected from such lands within the limits of such State, and the Secretary of the Interior is hereby directed to issue to each of the States in which there is not the quantity of public lands subject to sale at private entry at one dollar and twenty-five cents per acre, to which said State may be entitled under the provisions of this act, land scrip to the amount in acres for the deficiency of its distributive share; said scrip to be sold by said States and the proceeds thereof applied to the uses and purposes prescribed in this act, and for no other use or purpose whatsoever: *Provided,* That in no case shall any State to which land scrip may thus be issued be allowed to locate the same within the limits of any other State, or of any Territory of the United States, but their assignees may thus locate said land scrip upon any of the unappropriated lands of the United States subject to sale at private entry at one dollar and twenty-five cents, or less, per acre: *And provided further,* That not more than one million acres shall be located by such assignees in any one of the States: *And provided further,* That no such location shall be made before one year from the passage of this act.

SEC. 3. That all the expenses of management, superintendence, and taxes from date of selection of said lands, previous to their sales, and all expenses incurred in the management and disbursement of the moneys which may be received therefrom, shall be paid by the States to which they may belong, out of the treasury of said States, so that the entire proceeds of the sale of said lands shall be applied without any diminution whatever to the purposes hereinafter mentioned.

SEC. 4. That all moneys derived from the sale of the lands aforesaid by the States to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per centum upon the par value of said stocks; and that the moneys so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished (except so far as may be provided

in section fifth of this act), and the interest of which shall be inviolably appropriated, by each State which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

SEC. 5. That the grant of land and land scrip hereby authorized shall be made on the following conditions, to which, as well as to the provisions hereinbefore contained the previous assent of the several States shall be signified by legislative acts:

First. If any portion of the fund invested, as provided by the foregoing section, or any portion of the interest thereon, shall, by any action or contingency, be diminished or lost, it shall be replaced by the State to which it belongs, so that the capital of the fund shall remain forever undiminished; and the annual interest shall be regularly applied without diminution to the purposes mentioned in the fourth section of this act, except that a sum, not exceeding ten per centum upon the amount received by any State under the provisions of this act, may be expended for the purchase of lands for sites or experimental farms, whenever authorized by the respective legislatures of said States.

Second. No portion of said fund, nor the interest thereon, shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or buildings.

Third. Any State which may take and claim the benefit of the provisions of this act shall provide, within five years, at least not less than one college, as described in the fourth section of this act, or the grant to such State shall cease; and said State shall be bound to pay the United States the amount received of any lands previously sold, and that the title to purchasers under the State shall be valid.

Fourth. An annual report shall be made regarding the progress of each college, recording any improvements and experiments made, with their cost and results, and such other matters, including State industrial and economical statistics, as may be supposed useful; one copy of which shall be transmitted by mail free, by each, to all the other colleges which may be endowed under the provisions of this act, and also one copy to the Secretary of the Interior.

Fifth. When lands shall be selected from those which have been raised to double the minimum price, in consequence of railroad grants, they shall be computed to the States at the maximum price, and the number of acres proportionately diminished.

Sixth. No State while in a condition of rebellion or insurrection against the Government of the United States shall be entitled to the benefit of this act.

Seventh. No State shall be entitled to the benefits of this act unless it shall express its acceptance thereof by its legislature within two years from the date of its approval by the President.

SEC. 6. That land scrip issued under the provisions of this act shall not be subject to location until after the first day of January, one thousand eight hundred and sixty-three.

SEC. 7. That the land officers shall receive the same fees for locating land scrip issued under the provisions of this act as is now allowed for the location of military bounty land warrants under existing laws: *Provided*, Their maximum compensation shall not be thereby increased.

SEC. 8. That the governors of the several States to which scrip shall be issued under this act shall be required to report annually to Congress all sales made of such scrip until the whole shall be disposed of, the amount received for the same, and what appropriation has been made of the proceeds.

Approved July 2, 1862.

**LAW ESTABLISHING AGRICULTURAL EXPERIMENT STATIONS.**

[Hatch Act, March 2, 1887.]

AN ACT to establish agricultural experiment stations in connection with the colleges established in the several States under the provisions of an act approved July second, eighteen hundred and sixty-two, and of the acts supplementary thereto.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,* That in order to aid in acquiring and diffusing among the people of the United States useful and practical information on subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science, there shall be established, under direction of the college or colleges or agricultural department of colleges in each State or Territory established, or which may hereafter be established, in accordance with the provisions of an act approved July second, eighteen hundred and sixty-two, entitled "An act donating public lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts," or any of the supplements to said act, a department to be known and designated as an "agricultural experiment station:" *Provided,* That in any State or Territory in which two such colleges have been or may be so established the appropriation hereinafter made to such State or Territory shall be equally divided between such colleges, unless the legislature of such State or Territory shall otherwise direct.

SEC. 2. That it shall be the object and duty of said experiment stations to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analysis of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effects on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories.

SEC. 3. That in order to secure, as far as practicable, uniformity of methods and results in the work of said stations, it shall be the duty of the United States Commissioner of Agriculture to furnish forms, as far as practicable, for the tabulation of results of investigation or experiments; to indicate from time to time such lines of inquiry as to him shall seem most important; and, in general, to furnish such advice and assistance as will best promote the purpose of this act. It shall be the duty of each of said stations annually, on or before the first day of February, to make to the governor of the State or Territory in which it is located a full and detailed report of its operations, including a statement of receipts and expenditures, a copy of which report shall be sent to each of said stations, to the said Commissioner of Agriculture, and to the Secretary of the Treasury of the United States.

SEC. 4. That bulletins or reports of progress shall be published at said stations at least once in three months, one copy of which shall be sent to each newspaper in the States or Territories in which they are respectively located, and to such individuals actually engaged in farming as may request the same, and as far as the means of the station will permit. Such bulletins or reports and the annual reports of said stations shall be transmitted in the mails of the United States free of charge for postage, under such regulations as the Postmaster-General may from time to time prescribe.

SEC. 5. That for the purpose of paying the necessary expenses of conducting investigations and experiments and printing and distributing the results as hereinbefore prescribed, the sum of fifteen thousand dollars per annum is hereby appropriated to

## 50 HISTORICAL SKETCH OF DEPARTMENT OF AGRICULTURE.

each State, to be specially provided for by Congress in the appropriations from year to year, and to each Territory entitled under the provisions of section eight of this act, out of any money in the Treasury proceeding from the sales of public lands, to be paid in equal quarterly payments on the first day of January, April, July, and October in each year, to the treasurer or other officer duly appointed by the governing boards of said colleges to receive the same, the first payment to be made on the first day of October, eighteen hundred and eighty-seven: *Provided, however*, That out of the first annual appropriation so received by any station an amount not exceeding one-fifth may be expended in the erection, enlargement, or repair of a building or buildings necessary for carrying on the work of such station; and thereafter an amount not exceeding five per centum of such annual appropriation may be so expended.

SEC. 6. That whenever it shall appear to the Secretary of the Treasury from the annual statement of receipts and expenditures of any of said stations that a portion of the preceding annual appropriation remains unexpended, such amount shall be deducted from the next succeeding annual appropriation to such station, in order that the amount of money appropriated to any station shall not exceed the amount actually and necessarily required for its maintenance and support.

SEC. 7. That nothing in this act shall be construed to impair or modify the legal relation existing between any of the said colleges and the government of the States or Territories in which they are respectively located.

SEC. 8. That in States having colleges entitled under this section to the benefits of this act and having also agricultural experiment stations established by law separate from said colleges, such States shall be authorized to apply such benefits to experiments at stations so established by such States; and in case any State shall have established under the provisions of said act of July second, aforesaid, an agricultural department or experimental station, in connection with any university, college, or institution not distinctively an agricultural college or school, and such State shall have established or shall hereafter establish a separate agricultural college or school, which shall have connected therewith an experimental farm or station, the legislature of such State may apply in whole or in part the appropriation by this act made to such separate agricultural college or school, and no legislature shall by contract, express or implied, disable itself from so doing.

SEC. 9. That the grants of moneys authorized by this act are made subject to the legislative assent of the several States and Territories to the purposes of said grants: *Provided*, That payment of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of its legislature meeting next after the passage of this act shall be made upon the assent of the governor thereof duly certified to the Secretary of the Treasury.

SEC. 10. Nothing in this act shall be held or construed as binding the United States to continue any payments from the Treasury to any or all the States or institutions mentioned in this act, but Congress may at any time amend, suspend, or repeal any or all the provisions of this act.

Approved, March 2, 1887.

### ENDOWMENT OF AGRICULTURAL COLLEGES.

[Morrill law, August 30, 1890.]

**AN ACT** to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July second, eighteen hundred and sixty-two.

*Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled*, That there shall be, and hereby is, annually appropriated, out of any money in the Treasury not otherwise appropriated, arising from the sales of public lands, to be paid as hereinafter provided, to each State and Territory for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts now established, or which may be hereafter established,

in accordance with an act of Congress approved July second, eighteen hundred and sixty-two, the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety, and an annual increase of the amount of such appropriation thereafter for ten years by an additional sum of one thousand dollars over the preceding year, and the annual amount to be paid thereafter to each State and Territory shall be twenty-five thousand dollars, to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction: *Provided*, That no money shall be paid out under this act to any State or Territory for the support and maintenance of a college where a distinction of race or color is made in the admission of students, but the establishment and maintenance of such colleges separately for white and colored students shall be held to be a compliance with the provisions of this act if the funds received in such State or Territory be equitably divided as hereinafter set forth: *Provided*, That in any State in which there has been one college established in pursuance of the act of July second, eighteen hundred and sixty-two, and also in which an educational institution of like character has been established, or may be hereafter established, and is now aided by such State from its own revenue, for the education of colored students in agriculture and the mechanic arts, however named or styled, or whether or not it has received money heretofore under the act to which this act is an amendment, the legislature of such State may propose and report to the Secretary of the Interior a just and equitable division of the fund to be received under this act between one college for white students and one institution for colored students established as aforesaid, which shall be divided into two parts and paid accordingly, and thereupon such institution for colored students shall be entitled to the benefits of this act and subject to its provisions, as much as it would have been if it had been included under the act of eighteen hundred and sixty-two, and the fulfillment of the foregoing provisions shall be taken as a compliance with the provision in reference to separate colleges for white and colored students.

SEC. 2. That the sums hereby appropriated to the States and Territories for the further endowment and support of colleges shall be annually paid on or before the thirty-first day of July of each year, by the Secretary of the Treasury, upon the warrant of the Secretary of the Interior, out of the Treasury of the United States, to the State or Territorial treasurer, or to such officer as shall be designated by the laws of such State or Territory to receive the same, who shall, upon the order of the trustees of the college, or the institution for colored students, immediately pay over said sums to the treasurers of the respective colleges or other institutions entitled to receive the same, and such treasurers shall be required to report to the Secretary of Agriculture and to the Secretary of the Interior, on or before the first day of September of each year, a detailed statement of the amount so received and of its disbursement. The grants of moneys authorized by this act are made subject to the legislative assent of the several States and Territories to the purpose of said grants: *Provided*, That payments of such installments of the appropriation herein made as shall become due to any State before the adjournment of the regular session of legislature meeting next after the passage of this act shall be made upon the assent of the governor thereof, duly certified to the Secretary of the Treasury.

SEC. 3. That if any portion of the moneys received by the designated officer of the State or Territory for the further and more complete endowment, support, and maintenance of colleges, or of institutions for colored students, as provided in this act, shall, by any action or contingency, be diminished or lost, or be misapplied, it shall be replaced by the State or Territory to which it belongs, and until so replaced no subsequent appropriation shall be apportioned or paid to such State or Territory; and no portion of said moneys shall be applied, directly or indirectly, under any pretense whatever, to the purchase, erection, preservation, or repair of any building or

buildings. An annual report by the president of each of said colleges shall be made to the Secretary of Agriculture, as well as to the Secretary of the Interior, regarding the condition and progress of each college, including statistical information in relation to its receipts and expenditures, its library, the number of its students and professors, and also as to any improvements and experiments made under the direction of any experiment stations attached to said colleges, with their costs and results, and such other industrial and economical statistics as may be regarded as useful, one copy of which shall be transmitted by mail free to all other colleges further endowed under this act.

SEC. 4. That on or before the first day of July in each year, after the passage of this act, the Secretary of the Interior shall ascertain and certify to the Secretary of the Treasury as to each State and Territory whether it is entitled to receive its share of the annual appropriation for colleges, or of institutions for colored students, under this act, and the amount which thereupon each is entitled, respectively, to receive. If the Secretary of the Interior shall withhold a certificate from any State or Territory of its appropriation the facts and reasons therefor shall be reported to the President, and the amount involved shall be kept separate in the Treasury until the close of the next Congress, in order that the State or Territory may, if it should so desire, appeal to Congress from the determination of the Secretary of the Interior. If the next Congress shall not direct such sum to be paid it shall be covered into the Treasury. And the Secretary of the Interior is hereby charged with the proper administration of this law.

SEC. 5. That the Secretary of the Interior shall annually report to Congress the disbursements which have been made in all the States and Territories, and also whether the appropriation of any State or Territory has been withheld, and if so, the reasons therefor.

SEC. 6. Congress may at any time amend, suspend, or repeal any or all of the provisions of this act.

Approved, August 30, 1890.

*Statement of appropriations, disbursements, and unexpended balances for the United States Department of Agriculture from the fiscal year 1889 to the fiscal year 1897, inclusive.*

Purpose.	Date of appropriation act.	Reference to Statutes at Large.			Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
		Vol.	Page.	Sec.				
Collection of agricultural statistics, etc.	Mar. 3, 1839	5	354	9	1839	\$1,000.00	\$1,000.00	
	Aug. 26, 1842	5	533	26	1842	1,000.00	1,000.00	
	Mar. 3, 1843	5	642	1	1844	2,000.00	2,000.00	
	June 17, 1844	5	687	1	1845	2,000.00	2,000.00	
	Mar. 3, 1845	5	757	1	1846	3,000.00	3,000.00	
	Mar. 3, 1847	9	160	1	1847	3,000.00	3,000.00	
	Aug. 12, 1848	9	285	1	1848	3,500.00	3,500.00	
	do	9	285	1	1848	1,000.00	1,000.00	
	Mar. 3, 1849	9	364	1	1849	3,500.00	3,500.00	
	do	9	541	1	1850	1,000.00	1,000.00	
Chemical analyses of vegetable substances.	Sept. 30, 1850	9	541	1	1850	4,500.00	4,500.00	
	Mar. 3, 1851	9	615	1	1851	5,500.00	5,500.00	
	Aug. 31, 1852	10	95	1	1852	5,000.00	5,000.00	
	Mar. 3, 1853	10	208	1	1853	5,000.00	5,000.00	
	May 31, 1854	10	292	1	1854	10,000.00	10,000.00	
	Aug. 4, 1854	10	567	1	1855	50,000.00	50,000.00	
	Mar. 3, 1855	10	664	1	1856	30,000.00	30,000.00	
	May 15, 1856	11	14	1	1857	75,000.00	75,000.00	
	Aug. 18, 1856	11	89	1	1858	60,000.00	60,000.00	
	Mar. 3, 1857	11	226	1	1858	3,500.00	3,157.25	\$342.75
Information in relation to consumption of cotton.	do	11	321	1	1859	60,000.00	60,000.00	
	June 12, 1858	11	427	1	1860	40,000.00	40,000.00	
	Mar. 3, 1859	11	217	1	1861	60,000.00	60,000.00	
	June 25, 1860	12	108	1	1861	60,000.00	60,000.00	
	Mar. 2, 1861	12	217	1	1862	64,000.00	63,704.21	285.79
	Feb. 13, 1862	12	338	.....				
	Mar. 1, 1862	12	350	1	1863	80,000.00	80,000.00	
	Feb. 25, 1863	12	691	1	1864	5,000.00	5,000.00	
	do	12	691	1	1864	87,000.00	87,000.00	
	do	12	691	1	1864	3,000.00	3,000.00	
Collection of agricultural statistics, etc., and purchase, etc., of seeds.	do	12	691	1	1864	20,000.00	9,500.00	10,500.00
	Mar. 14, 1864	13	23	1	1864	2,000.00	2,000.00	
	do	13	23	1	1864	800.00	800.00	
	do	13	23	1	1864	1,320.00	1,320.00	
	do	13	23	1	1864	650.00	650.00	
	do	13	23	1	1864	38,300.00	38,300.00	
	June 25, 1864	13	155	1	1865	3,500.00	3,500.00	
	July 2, 1864	13	155	1	1865	20,000.00	20,000.00	
	June 25, 1864	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
Collection of agricultural statistics and purchase, etc., of seeds.	do	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
	do	13	155	1	1865	800.00	800.00	
Collection of agricultural statistics, etc., and purchase, etc., of seeds, including a deficiency appropriation of \$20,000, made March 3, 1863.	Salaries.....							
	Collection of agricultural statistics, etc., and purchase, etc., of seeds.							
	Culture of cotton and tobacco.							
	Investigations with flax and hemp.							
	Purchase of sorghum seed.							
	To rebuild shop in propagating garden.							
	Postage.....							
	Furniture, carpets, fuel, etc.							
	Salaries.....							
	Contingent expenses.....							
Collecting agricultural statistics								
Furniture, carpets, etc.								

*Statement of appropriations, disbursements, and unexpended balances for the Department of Agriculture, 1839 to 1897.—Continued.*

Purpose.	Date of appropriation act.	Reference to Statutes at Large.		Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
		Vol.	Page.				
Library and laboratory.....	June 25, 1864	13	155	1865	\$4,000.00	\$4,000.00	.....
Purchase and distribution of seeds.....	do	13	155	1865	61,000.00	61,000.00	.....
Experimental garden and grounds.....	do	13	155	1865	15,800.00	15,800.00	.....
To pay a debt incurred in preparing the Agricultural Report for 1861.....	July 2, 1864	13	350	1865	3,704.05	3,598.55	\$107.50
Rent, etc., of Commissioner's office.....	July 4, 1864	13	381	1865	3,500.00	3,500.00	.....
Salaries.....	Mar. 2, 1865	13	180	1866	46,726.59	46,726.59	.....
Contingent expenses.....	do	13	455	1866	7,500.00	7,500.00	.....
Collecting agricultural statistics.....	do	13	455	1866	20,000.00	20,000.00	.....
Purchase, etc., of seeds.....	do	13	180	1866	70,165.90	70,165.90	.....
Experimental garden and grounds, etc.....	do	13	160	1866	23,395.33	23,395.33	.....
Salaries.....	do	13	455	1866	39,600.00	39,600.00	.....
Contingent expenses.....	July 23, 1866	14	201	1867	11,500.00	11,500.00	.....
Collecting agricultural statistics.....	do	14	201	1867	10,000.00	10,000.00	.....
Purchase of seeds.....	do	14	201	1867	115,200.00	115,200.00	.....
Experimental garden and grounds, etc.....	Mar. 30, 1867	15	28	1867	22,800.00	22,800.00	.....
Salaries.....	July 23, 1866	14	202	1868	38,020.00	38,020.00	.....
Contingent expenses.....	Mar. 2, 1867	14	451	1868	13,000.00	13,000.00	.....
Collecting agricultural statistics.....	do	14	451	1868	10,000.00	8,408.34	1,591.66
Purchase, etc., of seeds.....	do	14	452	1868	95,200.00	95,200.00	.....
Museum.....	do	14	452	1868	10,000.00	10,000.00	.....
Experimental garden and grounds.....	do	14	452	1868	22,800.00	22,800.00	.....
To erect a building for the Department of Agriculture.....	do	14	464	1868	100,000.00	99,669.70	332.00
For certain goods and services furnished the Department.....	July 13, 1868	15	103	1869	65,368.00	65,368.00	.....
Salaries.....	July 20, 1868	15	106	1869	10,000.00	10,000.00	.....
Collecting agricultural statistics.....	do	15	106	1869	31,000.00	31,000.00	.....
Contingent expenses.....	do	15	106	1869	23,500.00	23,500.00	.....
Experimental garden and grounds.....	do	15	106	1869	20,000.00	20,000.00	.....
Purchase, etc., of seeds.....	do	15	106	1869	22,635.00	22,635.00	.....
Furniture, cases, and repairs.....	do	15	297	1870	69,240.00	67,720.00	1,520.00
Salaries.....	Mar. 3, 1869	15	298	1870	15,000.00	15,000.00	.....
Collecting agricultural statistics.....	do	15	298	1870	15,000.00	12,695.60	2,304.40
Investigations of cattle disease.....	do	15	298	1870	13,200.00	13,200.00	.....
Contingent expenses.....	do	15	298	1870	2,500.00	2,500.00	.....
Furniture, cases, and repairs.....	do	15	298	1870	21,500.00	21,500.00	.....
Experimental garden and grounds.....	do	15	298	1870	20,000.00	18,981.33	1,018.67
Purchase, etc., of seeds.....	do	15	298	1870	20,000.00	20,000.00	.....

Salaries.....	16	245	1871	71,980.00	71,811.64	186.36
Collecting agricultural statistics.....	16	314	1871	15,000.00	15,000.00	.....
Purchase, etc., of seeds.....	16	245	1871	30,000.00	28,865.17	1,134.83
Experimental garden and grounds.....	16	246	1871	53,200.00	53,200.00	.....
Contingent expenses.....	16	302	1871	8,100.00	8,100.00	.....
Furniture, cases, and repairs.....	16	246	1871	4,700.00	4,700.00	.....
Collecting and modeling specimens of fruit.....	16	246	1871	1,000.00	1,000.00	.....
Library.....	16	246	1871	1,000.00	1,000.00	.....
Herbarium.....	16	246	1871	1,000.00	1,000.00	.....
Laboratory.....	16	246	1871	1,700.00	1,700.00	.....
Folding room.....	16	246	1871	500.00	500.00	.....
Salaries.....	16	489	1872	75,170.89	75,017.89	152.11
Collecting agricultural statistics.....	16	489	1872	15,000.00	14,059.36	940.64
Purchase and distribution of seeds, etc.....	16	489	1872	45,000.00	45,000.00	.....
Experimental garden and grounds.....	16	509	1872	36,800.00	36,800.00	.....
Contingent expenses.....	16	489	1872	12,900.00	12,900.00	.....
Furniture, cases, and repairs.....	16	490	1872	4,700.00	4,700.00	.....
Collecting and modeling specimens of fruit.....	16	490	1872	1,000.00	1,000.00	.....
Herbarium.....	16	490	1872	1,000.00	1,000.00	.....
Library.....	16	490	1872	2,050.00	2,050.00	.....
Laboratory.....	16	490	1872	3,450.00	3,450.00	.....
Salaries.....	16	77	1873	75,800.00	75,889.73	27
Collecting agricultural statistics.....	16	77	1873	15,000.00	15,000.00	.....
Purchase and distribution of seeds.....	16	77	1873	55,000.00	55,000.00	.....
Experimental garden and grounds.....	16	77	1873	31,000.00	31,000.00	.....
Contingent expenses.....	16	368	1873	13,300.00	12,507.06	792.94
Folding room.....	16	77	1873	300.00	300.00	.....
Furniture, cases, and repairs.....	16	77	1873	5,200.00	5,200.00	.....
Museum and herbarium.....	16	78	1873	5,000.00	4,674.43	325.57
Library.....	16	369	1873	1,750.00	1,750.00	.....
Salaries.....	16	506	1874	78,190.00	76,924.00	1,266.00
Collecting agricultural statistics.....	16	506	1874	15,000.00	11,553.20	3,446.80
Purchase and distribution of seeds, etc.....	16	506	1874	65,000.00	64,904.89	95.11
Experimental garden and grounds.....	16	540	1874	26,200.00	25,731.74	468.26
Museum and herbarium.....	16	529	1874	2,000.00	1,942.92	57.08
Contingent expenses.....	16	507	1874	15,000.00	12,699.34	2,300.66
Furniture, cases, and repairs.....	16	507	1874	4,200.00	3,302.40	897.60
Library.....	16	507	1874	1,500.00	1,258.10	241.90
Postage.....	16	542	1874	32,000.00	35,449.09	16,550.91
Salaries.....	16	107	1875	77,180.00	77,127.00	52.40
Collecting agricultural statistics.....	16	107	1875	15,000.00	12,147.96	2,852.44

*Statement of appropriations, disbursements, and unexpended balances for the Department of Agriculture, 1839-1897.—Continued.*

Purpose.	Date of appropriation act.	Reference to Statutes at Large.			Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
		Vol.	Page.	Sec.				
Purchase and distribution of seeds, etc.	June 20, 1874	18	107	1	1875	\$95,000.00	\$94,719.83	\$280.17
Furniture, cases, and repairs	Jan. 23, 1875	18	303	3	1875	4,200.00	4,135.36	64.64
Experimental garden and grounds	June 20, 1874	18	107	1	1875	24,100.00	24,004.06	5.94
Contingent expenses	June 23, 1874	18	227	1	1875	12,600.00	10,972.61	1,627.39
Museum and herbarium	June 20, 1874	18	107	1	1875	4,500.00	3,300.00	1,200.00
Laboratory	June 23, 1874	18	227	1	1875	1,300.00	1,300.00	
Postage	do.	18	227	1	1875	1,500.00	1,087.90	412.10
To publish Commissioner's report for the years 1872 and 1873.	June 20, 1874	18	207	1	1875	52,000.00	42,633.00	9,367.00
Salaries	June 23, 1874	18	227	1	1875	50,000.00	49,561.91	438.09
Collecting agricultural statistics	Mar. 3, 1875	18	368	1	1876	77,180.00	77,115.71	64.29
Purchase and distribution of seeds	do.	18	368	1	1876	15,000.00	14,500.00	500.00
Experimental garden and grounds	do.	18	368	1	1876	65,000.00	65,000.00	
Museum and herbarium	do.	18	368	1	1876	19,990.00	19,956.11	33.89
Furniture, cases, and repairs	do.	18	368	1	1876	2,000.00	1,993.55	6.45
Laboratory	do.	18	368	1	1876	3,300.00	3,124.23	175.77
Laboratory	do.	18	368	1	1876	1,250.00	1,046.84	203.16
Contingent expenses	do.	18	368	1	1876	1,300.00	1,300.00	
Postage	do.	18	368	1	1876	12,100.00	11,378.91	721.09
Salaries	do.	18	368	1	1876	52,000.00	3,428.29	48,571.71
	July 21, 1876	19	95	1	1877	67,836.96	67,806.19	30.77
Experimental garden and grounds	Aug. 15, 1876	19	167	1	1877	11,550.00	11,550.00	
Collecting agricultural statistics	July 31, 1876	19	115	1	1877	10,000.00	10,000.00	
Purchase and distribution of seeds, etc.	Aug. 15, 1876	19	167	1	1877	85,000.00	80,000.00	5,000.00
Museum and herbarium	Mar. 3, 1877	19	167	1	1877	2,000.00	2,000.00	
Furniture, cases, and repairs	Aug. 15, 1876	19	167	1	1877	2,000.00	2,000.00	
Laboratory	do.	19	167	1	1877	1,000.00	800.00	200.00
Laboratory	do.	19	167	1	1877	1,300.00	1,300.00	
Contingent expenses	do.	19	167	1	1877	10,000.00	8,800.00	1,200.00
Postage	do.	19	167	1	1877	4,000.00	3,950.00	50.00
Salaries	do.	19	167	1	1877	65,640.00	65,640.00	
Collecting agricultural statistics	Mar. 3, 1877	19	317	1	1878	15,000.00	15,000.00	
Purchase and distribution of seeds, etc.	do.	19	317	1	1878	75,000.00	74,579.33	420.67
Experimental garden and grounds	do.	19	317	1	1878	10,500.00	10,500.00	
	do.	19	360	1	1878			

Museum.....	19	1878	1,500.00	1,500.00	.....
Furniture, cases, and repairs.....	19	1878	4,500.00	4,500.00	.....
Library.....	19	1878	1,000.00	1,000.00	.....
Laboratory.....	19	1878	1,000.00	1,000.00	.....
Contingent expenses.....	19	1878	8,000.00	8,000.00	.....
Postage.....	19	1878	3,415.61	584.39	.....
Report on forestry.....	19	1878	2,500.00	2,500.00	.....
International Industrial Exposition at Paris	20	1878	10,000.00	10,000.00	.....
Salaries.....	20	1878	66,900.00	66,900.00	.....
Collecting agricultural statistics.....	20	1879	10,000.00	10,000.00	.....
Purchase and distribution of seeds, etc.....	20	1879	75,000.00	75,000.00	.....
Experimental garden and grounds.....	20	1879	13,500.00	13,500.00	.....
Museum.....	20	1879	1,000.00	1,000.00	.....
Furniture, cases, and repairs.....	20	1879	4,000.00	4,000.00	.....
Library.....	20	1879	1,000.00	1,000.00	.....
Laboratory.....	20	1879	1,500.00	1,500.00	.....
Contingent expenses.....	20	1879	8,000.00	8,000.00	.....
Postage.....	20	1879	4,000.00	3,960.00	40.00
Investigating the history and habits of insects.....	20	1879	10,000.00	10,000.00	.....
Investigating diseases of domestic animals.....	20	1879	10,000.00	10,000.00	.....
To erect a stable.....	20	1879	1,500.00	1,500.00	.....
Salaries.....	20	1880	66,900.00	66,900.00	.....
Collecting agricultural statistics.....	21	1880	10,000.00	9,982.88	17.12
Purchase and distribution of seeds, etc.....	21	1880	75,000.00	75,000.00	.....
Experimental garden and grounds.....	21	1880	13,100.00	13,100.00	.....
Museum.....	21	1880	1,000.00	1,000.00	.....
Furniture, cases, and repairs.....	21	1880	4,000.00	4,000.00	.....
Laboratory.....	21	1880	1,000.00	1,000.00	.....
Contingent expenses.....	21	1880	1,500.00	1,500.00	.....
Postage.....	21	1880	8,000.00	8,000.00	.....
Investigating the history and habit of insects.....	21	1880	4,000.00	4,000.00	.....
Investigating diseases of domestic animals.....	21	1880	5,000.00	5,000.00	.....
Salaries.....	21	1880	10,000.00	8,878.84	1,121.16
Purchase and distribution of seeds, etc.....	21	1881	69,200.00	69,185.22	14.78
Collecting agricultural statistics.....	21	1881	102,160.31	102,157.48	2.83
Experimental garden and grounds.....	21	1881	10,000.00	9,985.60	14.40
Museum.....	21	1881	12,600.00	12,600.00	.....
Furniture, cases, and repairs.....	21	1881	1,000.00	1,000.00	.....
Laboratory.....	21	1881	5,000.00	5,000.00	.....
Contingent expenses.....	21	1881	1,000.00	1,000.00	.....
Postage.....	21	1881	4,000.00	4,000.00	.....
Report on forestry.....	21	1881	10,000.00	9,789.17	210.83
Investigating the history and habits of insects.....	21	1881	4,000.00	3,938.00	62.00
Investigating the diseases of domestic animals.....	21	1881	5,000.00	4,997.51	2.49
Examination of fibers.....	21	1881	10,000.00	10,000.00	.....
Experiments in the manufacture of sugar.....	21	1881	4,000.00	4,000.00	.....
.....	21	1881	7,500.00	7,500.00	.....

*Statement of appropriations, disbursements, and unexpended balances for the Department of Agriculture, 1839-1897—Continued.*

Purpose.	Date of appropriation act.	Reference to Statutes at Large.			Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
		Vol.	Page.	Sec.				
Collecting data touching arid regions of the United States.....	June 16, 1880	21	295	1	1881	\$5,000.00	\$460.00	\$4,540.00
Reclamation of arid lands.....	do	21	295	1	1881	18,353.55	18,353.55	( <sup>1</sup> )
Salaries.....	Mar. 3, 1881	21	381	1	1882	79,491.81	79,491.81	8.19
Collecting agricultural statistics.....	do	21	382	1	1882	10,000.00	10,000.00	
Laboratory.....	do	21	382	1	1882	6,000.00	5,811.85	188.15
Purchase and distribution of seeds, etc.....	do	21	382	1	1882	100,000.00	99,991.53	8.47
Experiments in the culture, etc., of tea.....	Apr. 16, 1882	22	44	1	1882	10,000.00	8,750.87	1,249.13
Experimental garden and grounds.....	Mar. 3, 1881	21	383	1	1882	15,000.00	14,968.25	31.75
Museum.....	do	21	385	1	1882	1,000.00	1,000.00	
Furniture, cases, and repairs.....	do	21	383	1	1882	4,000.00	4,000.00	
Library.....	do	21	383	1	1882	1,000.00	973.85	26.15
Investigating the history and habits of insects.....	do	21	383	1	1882	20,000.00	19,998.94	1.06
Examination of fibers.....	do	21	384	1	1882	5,000.00	5,000.00	
Investigating the diseases of domestic animals.....	do	21	384	1	1882	25,000.00	22,443.89	2,556.11
Collecting data touching the arid regions of the United States.....	do	21	384	1	1882	11,646.45	11,561.19	783.45
Reclamation of arid lands, including an unexpended balance of \$1,646.45 from fiscal year 1881.....	do	21	384	1	1882	5,000.00	4,216.55	( <sup>2</sup> )
Report on forestry.....	do	21	384	1	1882	5,000.00	4,941.00	59.00
Postage.....	do	21	384	1	1882	4,000.00	4,000.00	
Contingent expenses.....	do	21	384	1	1882	10,000.00	10,000.00	
Building for display of agricultural implements.....	do	21	385	1	1882	10,000.00	10,000.00	
Experiments in the manufacture of sugar (including \$864.60 from sale of molasses, etc.).....	do	21	384	1	1882	35,864.60	32,333.75	
Transportation of specimens from Atlanta.....	Feb. 13, 1882	22	3	1	1882	5,000.00	4,998.91	1.09
Salaries.....	May 19, 1882	22	89	1	1883	102,580.00	102,575.49	4.51
Collecting agricultural statistics.....	do	22	90	1	1883	80,000.00	78,170.80	1,829.20
Laboratory.....	do	22	90	1	1883	6,000.00	6,000.00	
Purchase and distribution of seeds, etc.....	do	22	90	1	1883	80,000.00	80,000.00	
Experiments in the culture, etc., of tea.....	do	22	91	1	1883	5,000.00	3,905.66	1,094.34
Experimental garden and grounds.....	do	22	91	1	1883	15,500.00	15,471.82	28.18
Museum.....	do	22	91	1	1883	1,000.00	1,000.00	
Furniture, cases, and repairs.....	do	22	91	1	1883	6,700.00	6,700.00	
Library.....	do	22	91	1	1883	1,500.00	1,485.32	14.68
Investigating the history and habits of insects.....	do	22	91	1	1883	20,000.00	19,997.75	2.25
Examination of fibers.....	do	22	91	1	1883	10,000.00	7,961.94	2,038.06
Investigating the diseases of domestic animals.....	do	22	92	1	1883	25,000.00	21,584.28	3,415.72
Reclamation of arid lands, including an unexpended balance of \$83.26 from fiscal year 1882.....	do	22	92	1	1883	20,855.26	12,429.13	( <sup>4</sup> )
Report on forestry.....	do	22	92	1	1883	10,000.00	8,731.99	1,268.01
Postage.....	do	22	92	1	1883	4,000.00	3,977.49	22.51
Contingent expenses.....	do	22	92	1	1883	15,000.00	14,920.74	79.26

Experiments in the manufacture of sugar, including an unexpended balance of \$3,530.85 from fiscal year 1882.	22	1883	28,530.85	28,530.31	1.54
Erection of building for seed division	22	1883	25,000.00	25,000.00	-----
Report on the Angora goat	22	1883	500.00	500.00	-----
Salaries	22	1884	127,640.00	127,639.87	13
Collecting agricultural statistics.	22	1884	80,000.00	79,770.86	229.14
Laboratory and for experiments in the manufacture of sugar, including \$842.18 from the sale of sirup, etc.	22	1884	16,842.18	16,829.26	12.92
Purchase and distribution of seeds, etc.	22	1884	75,000.00	74,986.48	13.52
Experimental gardens and grounds	22	1884	15,500.00	15,448.87	51.13
Museum	22	1884	1,000.00	993.51	6.49
Furniture, cases, and repairs	22	1884	6,000.00	5,998.82	1.18
Library	22	1884	1,500.00	1,439.86	60.14
Investigating the history and habits of insects	22	1884	20,002.82	20,002.82	-----
Reclamation of arid lands, including an unexpended balance of \$7,656.13 from fiscal year 1883.	22	1884	17,656.13	16,164.68	1,491.45
Investigating the diseases of domestic animals	22	1884	25,000.00	24,011.85	988.15
Report on forestry	22	1884	10,000.00	9,995.30	4.70
Postage	22	1884	4,000.00	3,841.48	158.52
Contingent expenses	22	1884	14,000.00	13,891.43	8.57
Building of greenhouse	22	1884	2,500.00	2,500.00	-----
Salaries	23	1885	137,596.00	137,537.80	58.20
Collecting agricultural statistics	23	1885	100,000.00	98,986.53	13.41
Bureau of Animal Industry	23	1885	150,000.00	98,807.73	51.27
Purchase and distribution of seeds, etc.	23	1885	100,000.00	98,983.82	16.18
Laboratory, and for experiments in the manufacture of sugar.	23	1885	50,000.00	49,866.70	3.30
Investigating the history and habits of insects	23	1885	20,000.00	19,986.53	13.47
Silk culture	23	1885	15,000.00	14,916.23	83.77
Contingent expenses	23	1885	15,000.00	14,862.20	137.80
Report on forestry	23	1885	10,000.00	9,987.36	12.64
Experimental garden and grounds.	23	1885	17,840.25	17,513.67	326.58
Furniture, cases, and repairs.	25	1885	6,000.00	5,947.27	52.73
Postage	23	1885	4,000.00	3,956.98	43.02
Experiments in the culture, etc., of tea	23	1885	3,000.00	2,998.90	1.10
Library	23	1885	1,500.00	1,403.63	96.37
Museum	23	1885	1,000.00	1,000.00	-----
Quarantine stations.	23	1885	25,000.00	22,029.18	(6)
Salaries	23	1886	137,590.00	137,337.42	252.58
Collecting agricultural statistics.	23	1886	75,000.00	68,723.06	6,276.94
Bureau of Animal Industry, including an unexpended balance of \$93,192.27 from fiscal year 1885.	23	1886	193,192.27	58,261.05	134,931.22
Quarantine stations, including an unexpended balance of \$2,970.82 for fiscal year 1885.	23	1886	32,970.82	18,958.57	14,012.25
Purchase and distribution of seeds, etc.	23	1886	100,000.00	99,980.24	19.76
Laboratory, and for experiments in the manufacture of sugar.	23	1886	40,000.00	39,942.11	57.89
Investigating the history and habits of insects	23	1886	25,000.00	24,976.46	23.54

1 Unexpended balance of \$1,646.45 carried to fiscal year 1882.  
 2 Unexpended balance of \$85.26 carried to fiscal year 1883.  
 3 Unexpended balance of \$3,530.85 carried to fiscal year 1883.

4 Unexpended balance of \$7,656.13 carried to fiscal year 1884.  
 5 Unexpended balance of \$93,192.27 carried to fiscal year 1886.  
 6 Unexpended balance of \$2,970.82 carried to fiscal year 1886.

*Statement of appropriations, disbursements, and unexpended balances for the Department of Agriculture, 1839-1897—Continued.*

Purpose.	Date of appropriation act.	Reference to Statutes at Large.		Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
		Vol.	Page.				
Silk culture.....	Mar. 3, 1885	23	356	1886	\$15,012.00	\$15,008.50	\$3.50
Contingent expenses.....	Oct. 19, 1888	25	581	1886	15,000.00	14,937.62	62.38
Report on forestry.....	Mar. 3, 1885	23	356	1886	10,000.00	9,836.83	163.17
Experimental garden and grounds.....	do.....	23	356	1886			
	do.....	23	354	1886			
	do.....	24	273	1886	17,208.13	17,024.88	183.25
Furniture, cases, and repairs.....	Aug. 4, 1886	24	273	1886			
Postage.....	Oct. 19, 1888	25	581	1886	7,500.00	7,423.59	76.41
Experiments in the culture, etc., of tea.....	Mar. 3, 1885	23	354	1886	4,000.00	2,556.20	1,443.80
Library.....	do.....	23	356	1886	3,000.00	1,813.67	1,186.33
Museum.....	do.....	23	355	1886	1,500.00	1,417.03	82.97
Salaries.....	do.....	23	354	1886	1,000.00	998.88	1.12
Collecting agricultural statistics.....	June 30, 1886	24	100	1887	142,890.00	141,420.68	1,469.32
Bureau of Animal Industry.....	do.....	24	103	1887	65,000.00	64,955.14	44.86
Quarantine stations.....	do.....	24	103	1887	100,000.00	99,985.56	14.44
Purchase and distribution of seeds, etc.....	do.....	24	103	1887	30,000.00	10,639.44	19,360.56
Laboratory.....	do.....	24	102	1887	100,000.00	99,998.37	1.63
Experiments in the manufacture of sugar, including \$1,891 from sales.....	do.....	24	101	1887	6,000.00	4,570.86	1,429.14
Investigating the history and habits of insects.....	do.....	24	101	1887	95,891.00	95,853.14	37.86
Silk culture, including \$864.81 from sale of raw silk.....	do.....	24	101	1887	15,096.25	15,088.05	8.20
Contingent expenses.....	Oct. 19, 1888	25	582	1887			
Report on forestry.....	June 30, 1886	24	101	1887	15,939.56	15,939.56	
Experimental garden and grounds.....	Oct. 19, 1888	25	581	1887	15,000.00	14,936.83	63.17
Furniture, cases, and repairs.....	do.....	24	103	1887	8,000.00	7,953.50	46.50
Postage.....	do.....	24	102	1887	23,200.00	22,202.15	997.85
Experiments in the culture, etc., of tea.....	do.....	24	103	1887	8,125.00	8,092.11	32.89
Pomological information.....	do.....	24	104	1887	4,000.00	3,500.00	500.00
Library.....	do.....	24	104	1887	2,000.00	1,753.78	246.22
Botanical investigations.....	do.....	24	100	1887	3,000.00	2,993.20	6.80
Museum.....	do.....	24	103	1887	1,500.00	1,428.65	71.35
Ornithology and mammalogy.....	do.....	24	100	1887	5,000.00	4,988.12	11.88
Reclamation of arid lands.....	do.....	24	102	1887	1,000.00	998.98	1.02
Adulteration of food.....	do.....	24	103	1887	10,000.00	9,999.98	
Salaries.....	do.....	24	100	1887	5,000.00	4,988.12	11.88
Collecting agricultural statistics.....	Mar. 3, 1887	24	100	1887	1,000.00	989.14	10.86
Bureau of Animal Industry, including \$100,000 immediately available.....	do.....	24	498	1888	161,490.00	158,220.87	3,269.13
Quarantine stations.....	do.....	24	498	1888	65,000.00	64,965.33	34.67
Purchase and distribution of seeds, etc.....	do.....	24	499	1888	500,000.00	499,975.32	24.68
	do.....	24	499	1888	20,000.00	9,538.75	10,461.25
	do.....	24	498	1888	103,000.00	102,387.55	612.45

# APPROPRIATIONS AND DISBURSEMENTS.

61

Laboratory .....	do	24	497	1	1888	6,000.00	5,969.89	30.11
Experiments in the manufacture of sugar .....	do	24	497	1	1888	50,000.00	49,997.43	2.57
Experiments in the manufacture of sugar (deficiency) .....	Oct. 19, 1888	25	582	1	1888	8,000.00	7,927.50	72.50
Investigating the history and habits of insects .....	Mar. 3, 1887	24	497	1	1888	20,000.00	20,000.00	
Silk culture, including \$1,989.06 from sale of raw silk .....	do	24	497	1	1888	16,989.06	16,989.06	
Contingent expenses .....	do	24	490	1	1888	4,823.37	4,823.37	174.43
Report on forestry .....	do	24	497	1	1888	7,996.10	7,996.10	3.90
Experimental garden and grounds .....	do	24	497	1	1888	24,706.86	24,706.86	93.14
Furniture, cases, and repairs .....	do	24	496	1	1888	6,952.88	6,952.88	17.12
Postage .....	do	24	499	1	1888	3,000.00	3,000.00	1,000.00
Pomological information .....	do	24	497	1	1888	2,971.69	2,971.69	28.31
Library .....	do	24	499	1	1888	1,983.78	1,983.78	16.22
Botanical investigations .....	do	24	496	1	1888	7,000.00	6,997.28	2.72
Museum .....	do	24	497	1	1888	1,000.00	947.41	52.59
Ornithology and mammalogy .....	do	24	497	1	1888	3,940.00	3,869.23	70.77
Autuluration of food .....	do	24	497	1	1888	1,000.00	830.16	169.84
Salaries .....	July 18, 1888	25	528	1	1889	171,890.32	169,152.51	2,737.81
Collecting agricultural statistics .....	Mar. 2, 1889	25	923	1	1889	70,000.00	69,162.45	837.55
Botanical investigations .....	July 18, 1888	25	332	1	1889	35,000.00	23,076.75	( <sup>1</sup> )
Investigating the history and habits of insects .....	do	25	330	1	1889	20,131.64	20,131.64	
Ornithology and mammalogy .....	Sept. 30, 1890	26	525	1	1889			
Pomological information .....	July 18, 1888	25	332	1	1889	5,025.90	5,022.06	3.84
Microscopical investigations .....	Mar. 2, 1889	25	330	1	1889	4,024.48	4,020.32	4.16
Laboratory .....	do	25	330	1	1889	1,000.00	999.87	.13
Forestry investigations .....	Mar. 2, 1889	25	330	1	1889	11,000.00	9,994.25	1,005.75
Purchase and distribution of seeds .....	July 18, 1888	25	333	1	1889	8,000.00	7,999.03	.97
Experimental gardens and grounds .....	do	25	332	1	1889	104,200.00	104,168.73	31.27
Museum .....	do	25	332	1	1889	26,640.00	26,639.83	.17
Furniture, cases, and repairs .....	do	25	332	1	1889	1,000.00	891.25	108.75
Library .....	do	25	333	1	1889	7,350.00	7,216.74	113.26
Postage .....	do	25	333	1	1889	2,000.00	1,956.34	43.66
Contingent expenses .....	do	25	333	1	1889	4,000.00	4,000.00	
Office of Experiment Stations .....	do	25	333	1	1889	15,010.00	15,009.22	.78
Experiments in the manufacture of sugar .....	Mar. 3, 1891	26	881	1	1889	10,000.00	9,033.77	966.23
Quarantine stations .....	July 18, 1888	25	334	1	1889	100,000.00	41,635.24	( <sup>2</sup> )
Bureau of Animal Industry .....	do	25	333	1	1889	15,000.00	11,628.39	3,371.61
Silk culture, including \$708.26 from sale of raw silk .....	do	25	333	1	1889	500,000.00	479,623.57	20,376.43
Salaries .....	do	25	333	1	1889	23,208.26	23,208.26	
Collecting agricultural statistics .....	Mar. 2, 1889	25	835	1	1890	178,580.00	175,547.04	3,032.96
	do	25	839	1	1890	75,000.00	74,327.51	672.49

<sup>1</sup> Unexpended balance of \$12,923.25 carried to fiscal year 1890.

<sup>2</sup> Unexpended balance of \$58,364.76 carried to fiscal year 1890.

## Statement of appropriations, disbursements, and unexpended balances for the Department of Agriculture, 1839-1897—Continued.

Purpose.	Date of appropriation act.	Reference to Statutes at Large.		Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
		Vol.	Page.				
Botanical investigations, including an unexpended balance of \$12,923.25 from fiscal year 1889 ..	Mar. 2, 1889	25	836	1890	\$48,002.25	\$47,990.38	\$18.87
Investigating the history and habits of insects ..	July 28, 1892	27	296	1891			
Ornithology and mammalogy ..	Mar. 2, 1889	25	837	1890	20,000.00	19,892.72	107.28
Pomological information ..	July 14, 1890	26	838	1891	7,000.00	6,994.16	5.84
Microscopical investigations ..	Mar. 2, 1889	25	837	1890	4,304.79	4,304.79	.....
Laboratory ..	Mar. 3, 1891	26	881	1891			
Forestry investigations ..	Mar. 2, 1889	25	837	1890	1,062.50	1,062.50	.....
Purchase and distribution of seeds ..	July 28, 1892	27	296	1891			
Experimental garden and grounds ..	Mar. 2, 1889	25	837	1890	6,000.00	5,461.99	538.01
Museum ..	do	25	840	1890	8,000.00	7,998.96	.04
Furniture, cases, and repairs ..	do	25	839	1890	104,200.00	104,174.55	25.45
Library ..	do	25	838	1890	26,640.00	26,478.45	161.55
Postage ..	do	25	838	1890	1,000.00	998.39	1.61
Contingent expenses ..	do	25	839	1890	9,350.00	9,261.93	88.07
Office of Experiment Stations ..	Apr. 4, 1890	26	42	1891	2,000.00	1,735.28	261.72
Experiments in the manufacture of sugar, including an unexpended balance of \$8,364.76 from fiscal year 1889 ..	Mar. 2, 1889	25	839	1890	4,000.00		
Quarantine stations ..	do	25	840	1890			
Bureau of Animal Industry ..	do	25	840	1890	20,000.00	19,965.32	34.68
Silk culture, including \$1,627.81 from sale of raw silk ..	Apr. 4, 1890	26	42	1891	15,000.00	14,991.69	8.31
Artesian wells ..	do	25	840	1890	83,364.76	83,064.14	300.62
Salaries ..	do	25	840	1890	15,000.00	11,266.24	3,733.76
Collecting agricultural statistics ..	do	25	839	1890	500,000.00	311,025.31	(1)
Botanical investigations ..	do	25	837	1890	21,627.10	21,626.10	1.71
Investigating the history and habits of insects ..	do	26	42	1891	20,000.00	19,652.17	347.83
Ornithology and mammalogy ..	Apr. 4, 1890	26	282	1891	248,902.85	239,923.29	8,979.56
Pomological information ..	July 14, 1890	26	284	1891	100,000.00	85,126.44	14,873.56
Microscopical investigations ..	do	26	284	1891	40,000.00	36,428.36	3,571.64
Laboratory ..	do	26	284	1891			
Forestry investigations ..	do	26	285	1891	27,501.77	27,481.00	20.77
Experimental garden and grounds ..	do	26	285	1891			
Museum ..	do	26	285	1891	14,004.90	13,003.67	1,001.23
Furniture, cases, and repairs ..	do	26	285	1891	5,000.00	4,983.88	16.12
Library ..	do	26	285	1891	5,000.00	3,281.90	1,718.10
Postage ..	do	26	285	1891	15,000.00	14,995.75	4.25
Contingent expenses ..	do	26	285	1891	20,200.00	19,985.27	214.73
Office of Experiment Stations ..	do	26	286	1891	10,000.00	9,785.99	214.01
Experiments in the manufacture of sugar, including an unexpended balance of \$8,364.76 from fiscal year 1889 ..	do	26	286	1891	2,000.00	1,994.58	.42
Quarantine stations ..	do	26	286	1891	105,400.00	105,090.94	309.06

# APPROPRIATIONS AND DISBURSEMENTS.

63

Document and folding room.....	do.....	26	1891	2,000.00	1,995.53	4.47
Experimental garden and grounds.....	do.....	26	1891	28,500.00	28,386.41	103.59
Museum.....	do.....	26	1891	4,000.00	3,852.28	167.72
Furniture, cases, and repairs.....	do.....	26	1891	12,000.00	11,991.01	8.99
Library.....	Mar. 3, 1891.....	26	1891	3,000.00	2,997.20	2.80
Postage.....	July 14, 1890.....	26	1891	4,553.00	4,553.00	167.00
Contingent expenses.....	do.....	26	1891	20,000.00	18,097.13	1,902.87
Office of Experiment Stations.....	do.....	26	1891	15,000.00	14,984.48	15.52
Experiments in the manufacture of sugar.....	do.....	26	1891	75,000.00	74,901.18	98.82
Irrigation investigations.....	Mar. 3, 1891.....	26	1891	40,000.00	39,926.67	73.33
Quarantine stations.....	Sept. 30, 1890.....	26	1891	13,566.72	13,566.72	1,413.28
Bureau of Animal Industry, including an unexpended balance of \$188,974.69 from fiscal year 1890.....	July 14, 1890.....	26	1891	538,974.69	460,113.35	69,861.34
Silk culture, including \$565 from sale of raw silk.....	do.....	26	1891	20,565.00	19,536.33	1,028.67
Salaries.....	Mar. 3, 1891.....	26	1892	252,766.17	252,766.17	4,063.83
Collecting agricultural statistics.....	do.....	26	1892	102,500.00	88,869.51	13,630.49
Botanical investigations.....	do.....	26	1892	40,246.40	40,246.40	.....
Investigating the history and habits of insects.....	Aug. 23, 1894.....	28	1892	27,800.00	27,780.03	19.97
Ornithology and mammalogy.....	Mar. 3, 1891.....	26	1892	15,000.00	14,688.00	312.00
Pomological information.....	do.....	26	1892	5,000.00	4,985.27	14.73
Microscopical investigations.....	do.....	26	1892	2,000.00	1,251.46	748.54
Vegetable pathology.....	do.....	26	1892	15,076.47	15,076.47	.....
Laboratory.....	Aug. 23, 1894.....	28	1892	19,400.00	19,272.59	127.41
Fiber investigations.....	Mar. 3, 1891.....	26	1892	10,000.00	8,017.44	1,982.56
Forestry investigations.....	do.....	26	1892	15,056.85	15,056.85	.....
Illustrations and engravings.....	Mar. 3, 1893.....	27	1892	2,000.00	1,999.85	.15
Purchase and distribution of seeds.....	Mar. 3, 1891.....	26	1892	105,400.00	104,920.35	479.65
Document and folding room.....	do.....	26	1892	2,000.00	1,996.82	3.18
Experimental garden and grounds.....	do.....	26	1892	28,622.53	28,536.67	85.86
Museum.....	Mar. 3, 1893.....	27	1892	4,000.00	3,909.17	90.83
Furniture, cases, and repairs.....	do.....	26	1892	10,000.00	9,996.55	3.45
Library.....	do.....	26	1892	3,000.00	2,807.75	192.25
Postage.....	do.....	26	1892	5,000.00	4,900.00	100.00
Contingent expenses.....	do.....	26	1892	25,000.00	24,762.32	237.68
Office of Experiment Stations.....	do.....	26	1892	20,000.00	19,989.47	10.53
Experiments in the manufacture of sugar.....	do.....	26	1892	35,000.00	34,627.78	372.22
Quarantine stations.....	Mar. 18, 1892.....	27	1892	15,000.00	14,983.63	16.37
Bureau of Animal Industry.....	do.....	26	1892	650,000.00	649,880.91	19.09
Weather Bureau.....	Mar. 18, 1892.....	27	1892	889,753.50	861,840.83	27,912.67
Salaries.....	Mar. 3, 1891.....	26	1893	256,800.00	253,896.30	2,903.70
Collecting agricultural statistics.....	July 5, 1892.....	27	1893	110,000.00	95,649.21	14,350.79
Botanical investigations and experiments.....	do.....	27	1893	27,500.00	27,451.55	48.45
Investigating the history and habits of insects.....	do.....	27	1893	17,800.00	17,290.80	509.20

1Unexpended balance of \$188,974.69 carried to fiscal year 1891.

## Statement of appropriations, disbursements, and unexpended balances for the Department of Agriculture, 1839-1897—Continued.

Purpose.	Date of appropriation act.	Reference to Statutes at Large.		Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
		Vol.	Page.				
Investigations in ornithology and mammalogy.....	July 5, 1892	27	77	1893	\$15,000.00	\$14,947.77	\$52.23
Zoological information.....	do	27	77	1893	3,000.00	4,745.94	255.06
Microscopical investigations.....	do	27	77	1893	3,000.00	1,192.98	17.02
Vegetable pathology.....	do	27	77	1893	20,000.00	13,977.98	22.62
Laboratory.....	do	27	77	1893	18,400.00	18,002.39	1,397.41
Fiber investigations.....	do	27	77	1893	5,000.00	4,897.97	68.81
Forest investigations.....	do	27	78	1893	12,000.00	11,833.39	66.81
Illustration, and engravings.....	do	27	78	1893	2,000.00	1,906.73	93.97
Purchase and distribution of seeds.....	do	27	78	1893	135,400.00	134,908.27	491.71
Document and folding room.....	do	27	78	1893	2,000.00	1,623.35	376.45
Experimental garden and grounds.....	do	27	78	1893	28,500.00	28,115.09	384.91
Museum.....	do	27	79	1893	4,000.00	3,973.67	26.33
Furniture, cases, and repairs.....	do	27	79	1893	10,000.00	8,931.97	1,068.03
Library.....	do	27	79	1893	3,000.00	3,705.00	404.71
Postage.....	do	27	79	1893	3,000.00	2,535.29	464.71
Contingent expenses.....	do	27	79	1893	3,000.00	3,705.00	1,295.00
Experiment stations.....	do	27	80	1893	25,000.00	22,218.19	2,781.81
Experiments in the manufacture of sugar.....	do	27	80	1893	20,000.00	18,987.65	1,012.35
Irrigation investigations.....	do	27	80	1893	20,000.00	19,984.86	15.14
Quarantine stations.....	do	27	76	1893	6,000.00	4,930.67	1,069.33
Experiments in the production of rainfall.....	do	27	76	1893	15,000.00	12,653.23	2,366.77
Bureau of Animal Industry.....	do	27	76	1893	10,000.00	4,979.59	5,020.41
Weather Bureau.....	do	27	79	1893	850,000.00	724,696.74	125,303.26
Salaries.....	do	27	81	1893	913,660.72	890,424.77	23,235.95
Collecting agricultural statistics.....	Mar. 3, 1893	27	734	1894	256,800.00	233,679.75	23,120.25
Botanical investigations and experiments.....	do	27	736	1894	110,000.00	91,080.20	18,919.80
Investigating the history and habits of insects.....	do	27	737	1894	30,000.00	24,401.40	5,598.60
Investigations in ornithology and mammalogy.....	do	27	737	1894	20,300.00	16,203.96	4,096.04
Zoological information.....	do	27	737	1894	17,500.00	17,450.00	50.00
Microscopical investigations.....	do	27	738	1894	5,000.00	4,248.99	751.01
Vegetable pathology.....	do	27	738	1894	2,000.00	1,117.55	882.45
Laboratory.....	do	27	738	1894	21,900.00	17,576.95	2,423.05
Fiber investigations.....	do	27	738	1894	20,000.00	10,426.79	11,473.21
Forest investigations.....	do	27	738	1894	5,000.00	2,500.47	2,499.53
Illustrations and engravings.....	do	27	738	1894	2,000.00	19,995.96	4.04
Purchase and distribution of seeds.....	do	27	738	1894	2,000.00	664.79	1,335.21
Document and folding room.....	do	27	738	1894	135,400.00	119,719.76	15,680.24
Experimental garden and grounds.....	do	27	739	1894	2,000.00	1,662.81	337.19
Museum.....	do	27	739	1894	31,500.00	26,616.86	4,883.14
Furniture, cases, and repairs.....	do	27	739	1894	4,000.00	2,787.22	1,212.78
Library.....	do	27	739	1894	10,000.00	8,628.76	1,371.24
Postage.....	do	27	739	1894	3,000.00	2,900.07	1,99.93

Postage.....	do.....	27	1894	5,000.00	1,375.00	3,625.00
Contingent expenses.....	do.....	27	1894	25,000.00	20,486.04	4,513.96
Experiments in entomology.....	do.....	27	1894	25,223.50	22,381.83	2,841.67
Inquiries relating to public roads.....	do.....	27	1894	10,000.00	7,997.39	2,002.61
Experiments in the manufacture of sugar.....	do.....	27	1894	20,107.33	9,451.60	10,655.73
Irrigation investigations.....	do.....	27	1894	6,000.00	5,475.82	574.18
Quarantine stations.....	do.....	27	1894	15,000.00	6,263.92	8,736.08
Bureau of Animal Industry.....	do.....	27	1894	850,000.00	496,111.34	353,888.66
Weather Bureau.....	do.....	27	1894	851,124.75	811,256.02	139,868.73
Salaries.....	do.....	27	1894	249,876.16	204,389.72	45,486.44
Collecting agricultural statistics.....	do.....	28	1895	110,000.00	95,125.67	14,874.33
Botanical investigations and experiments.....	do.....	28	1895	30,000.00	25,695.30	4,304.70
Investigating the history and habits of insects.....	do.....	28	1895	20,300.00	16,822.87	3,477.13
Investigations in ornithology, etc.....	do.....	28	1895	17,500.00	15,526.35	1,973.65
Pomological information.....	do.....	28	1895	5,000.00	4,920.23	79.77
Microscopical investigations.....	do.....	28	1895	2,000.00	313.87	1,686.13
Vegetable pathological investigations, etc.....	do.....	28	1895	20,000.00	19,063.69	936.31
Laboratory.....	do.....	28	1895	14,900.00	11,010.50	3,889.50
Fiber investigations.....	do.....	28	1895	5,000.00	3,973.81	1,026.19
Report on forestry.....	do.....	28	1895	5,000.00	19,908.23	91.77
Illustrations and engravings.....	do.....	28	1895	15,000.00	9,114.71	5,885.29
Purchase and distribution of valuable seeds.....	do.....	28	1895	165,400.00	120,545.15	44,854.85
Document and folding room.....	do.....	28	1895	2,000.00	1,166.83	833.17
Experimental gardens and grounds.....	do.....	28	1895	25,500.00	23,572.11	1,927.89
Museum.....	do.....	28	1895	3,000.00	1,889.73	1,110.27
Furniture, cases, and repairs.....	do.....	28	1895	10,000.00	7,952.37	2,047.73
Library.....	do.....	28	1895	6,000.00	5,963.20	36.80
Postage.....	do.....	28	1895	5,000.00	765.00	4,235.00
Nutrition investigations.....	do.....	28	1895	10,000.00	9,746.30	253.70
Contingent expenses.....	do.....	28	1895	25,000.00	20,452.79	4,547.21
Agricultural experiment stations.....	do.....	28	1895	25,000.00	24,928.22	71.78
Inquiries relating to public roads.....	do.....	28	1895	10,000.00	6,901.66	3,098.34
Experiments in the manufacture of sugar.....	do.....	28	1895	10,000.00	6,188.80	3,811.20
Irrigation investigations.....	do.....	28	1895	6,000.00	3,904.88	2,095.12
Quarantine stations for neat cattle.....	do.....	28	1895	12,000.00	6,262.17	5,737.83
Bureau of Animal Industry.....	do.....	28	1895	800,000.00	534,028.38	265,971.62
Weather Bureau.....	do.....	28	1895	878,438.84	820,691.94	57,746.90
Salaries.....	do.....	28	1895	252,840.00	217,066.97	35,773.03
Collecting agricultural statistics.....	do.....	28	1896	110,000.00	67,377.71	42,622.29
Inquiries relating to public roads.....	do.....	28	1896	10,000.00	9,392.18	607.82
Botanical investigations and experiments.....	do.....	28	1896	25,000.00	18,612.47	6,387.53
Investigating the history and habits of insects.....	do.....	28	1896	20,000.00	17,022.68	2,977.32
Investigations in ornithology and mammalogy.....	do.....	28	1896	17,500.00	14,805.89	2,694.11
Pomological information.....	do.....	28	1896	6,000.00	4,885.61	1,114.39
Microscopical investigations.....	do.....	28	1896	2,000.00	.....	2,000.00
Vegetable physiology and pathology.....	do.....	28	1896	20,000.00	17,055.83	2,944.17
Laboratory.....	do.....	28	1896	14,900.00	10,537.86	4,362.12
Investigations in forestry.....	do.....	28	1896	25,000.00	16,626.51	8,373.49
Illustrations and engravings.....	do.....	28	1896	15,000.00	11,592.77	3,407.23
Materials, document and folding room.....	do.....	28	1896	2,000.00	1,061.23	938.77
Experimental gardens and grounds.....	do.....	28	1896	25,500.00	22,149.18	7,350.82
Quarantine stations for neat cattle.....	do.....	28	1896	12,000.00	5,675.89	6,324.11

<sup>1</sup> For the years 1896 and 1897 the figures given represent payments made to close of fiscal year, the accounts for those years being still open at date of this revision.

## Statement of appropriations, disbursements, and unexpended balances for the Department of Agriculture, 1839-1897—Continued.

Purpose.	Date of appropriation act.	Reference to Statutes at Large.		Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
		Vol.	Page.				
Purchase and distribution of valuable seeds.....	Mar. 2, 1895	28	733	1896	\$185,400.00	\$104,408.27	\$8,991.73
Experiments in the manufacture of sugar.....	do	28	734	1896	10,000.00	1,510.94	8,489.06
Agricultural experiment stations.....	do	28	734	1896	30,000.00	26,044.73	3,955.27
Irrigation investigations.....	do	28	735	1896	15,000.00	4,538.55	10,461.45
Nutrition investigations.....	do	28	735	1896	15,000.00	11,648.59	3,351.41
Investigations and experiments with grasses and forage plants.....	do	28	735	1896	15,000.00	12,755.28	2,244.72
Investigations in relation to agricultural soils.....	do	28	735	1896	15,000.00	12,330.27	2,669.73
Furniture, cases, and repairs.....	do	28	735	1896	10,000.00	8,383.05	1,616.95
Postage.....	do	28	735	1896	2,000.00	1,215.00	785.00
Museum.....	do	28	735	1896	3,000.00	2,100.00	840.00
Fiber investigations.....	do	28	735	1896	5,000.00	3,710.30	1,289.64
Library.....	do	28	735	1896	6,000.00	3,412.67	2,587.33
Contingent expenses.....	do	28	736	1896	25,000.00	14,783.47	10,216.53
Bureau of animal industry.....	do	28	731	1896	800,000.00	543,077.23	256,922.77
Weather Bureau.....	do	28	736	1897	885,610.00	751,332.83	134,277.17
Salaries.....	Apr. 25, 1896	29	99	1897	313,860.00	290,791.95	23,068.05
Furniture, cases, and repairs.....	do	29	105	1897	12,000.00	8,782.98	3,217.02
Library.....	do	29	104	1897	7,000.00	4,685.44	2,314.56
Museum.....	do	29	105	1897	3,000.00	2,889.60	110.40
Postage.....	do	29	105	1897	3,000.00	1,730.00	1,270.00
Contingent expenses.....	do	29	105	1897	25,000.00	17,875.60	7,124.40
Annual quarantine stations.....	do	29	105	1897	12,000.00	5,657.91	6,342.09
Collecting agricultural statistics, etc.....	do	29	101	1897	110,000.00	81,421.96	28,598.04
Botanical investigations and experiments.....	do	29	101	1897	15,000.00	12,618.33	2,381.67
Entomological investigations.....	do	29	102	1897	20,000.00	17,775.16	2,224.84
Vegetable pathological investigations.....	do	29	102	1897	20,000.00	18,018.75	1,981.25
Biological investigations.....	do	29	102	1897	17,500.00	16,305.32	1,194.68
Pomological investigations.....	do	29	102	1897	6,000.00	4,784.45	1,215.55
Laboratory.....	do	29	102	1897	12,400.00	9,851.24	2,548.76
Forestry investigations.....	do	29	102	1897	20,000.00	12,131.34	7,868.66
Experimental gardens and grounds.....	do	29	102	1897	20,000.00	18,977.32	1,022.68
Soil investigations.....	do	29	102	1897	10,000.00	9,384.50	615.50
Grass and forage plant investigations.....	do	29	102	1897	10,000.00	8,635.27	1,364.73
Fiber investigations.....	do	29	102	1897	5,000.00	4,136.00	864.00
Agricultural Experiment Stations.....	do	29	102	1897	30,000.00	28,132.08	1,867.92
Nutrition investigations.....	do	29	102	1897	15,000.00	11,373.23	3,626.78
Public-road inquiries.....	do	29	104	1897	8,000.00	7,633.93	366.08
Publications.....	do	29	104	1897	70,000.00	60,004.22	9,995.78
Purchase and distribution of valuable seeds.....	do	29	106	1897	150,000.00	132,968.07	17,031.93
Salaries and expenses, Bureau of Animal Industry.....	do	29	106	1897	650,000.00	572,874.46	77,125.54
Weather Bureau.....	do	29	107	1897	883,772.00	786,605.14	97,166.86

For the years 1896 and 1897 the figures given represent the payments made to close of fiscal year, the accounts for those years being still open at the date of this revision.

RECAPITULATION.

Fiscal year.	Amount appro- priated.	Amount dis- bursed.	Amount unex- pended.	Fiscal year.	Amount appro- priated.	Amount dis- bursed.	Amount unex- pended.
1839				1864	\$198,770.00	\$189,270.00	\$10,500.00
1840	\$1,000.00	\$1,000.00		1865	112,304.05	112,196.55	107.50
1841				1866	167,787.82	167,787.82	
1842				1867	199,100.00	199,100.00	
1843	1,000.00	1,000.00		1868	279,020.00	277,094.34	
1844	2,000.00				172,593.00	172,593.00	1,925.66
1845	2,000.00	2,000.00			156,440.00	151,596.93	
1846	3,000.00	3,000.00			188,180.00	186,876.81	4,843.07
1847	3,000.00	3,000.00		1871	197,070.00	195,977.25	1,303.19
1848	4,500.00	4,500.00		1872	202,440.00	197,251.23	1,092.75
1849	3,500.00	3,500.00		1873	257,690.00	233,765.78	1,118.78
1850	5,500.00	5,500.00		1874	337,380.00	23,924.22	23,924.22
1851	5,500.00	5,500.00		1875	249,120.00	321,079.83	16,300.17
1852	5,000.00	5,000.00		1876	194,686.96	198,843.64	50,276.36
1853	5,000.00	5,000.00		1877	188,206.19	188,206.19	
1854	10,000.00	10,000.00		1878	198,640.00	197,634.94	1,005.06
1855	150,000.00	50,000.00		1879	206,400.00	206,360.00	40.00
1856	30,000.00	30,000.00		1880	199,500.00	198,361.72	1,138.28
1857	75,000.00	75,000.00		1881	275,460.31	267,608.84	7,851.47
1858	63,500.00	63,137.25		1882	363,011.05	354,482.39	8,528.66
1859	60,000.00	60,000.00	\$342.75		456,396.11	438,941.72	17,454.39
1860	40,000.00	40,000.00		1883	1,416,641.13	413,618.09	3,023.04
1861	60,000.00	60,000.00		1884	1,655,930.25	558,934.89	896,995.36
1862	64,000.00	63,704.21		1885	1,677,973.22	519,196.11	158,777.11
1863	80,000.00	80,000.00	295.79	1886	1,657,641.81	628,287.14	29,354.67
				1887	1,027,219.06	1,021,282.82	15,936.44

<sup>1</sup> Including deficiency appropriation.

<sup>2</sup> Includes \$1,646.45 of the appropriation for reclamation of arid lands carried to the fiscal year 1882.

<sup>3</sup> Includes \$85.26 of the appropriation for reclamation of arid lands, and \$3,530.35 of the appropriation for experiments in the manufacture of sugar, carried to the fiscal year 1883.

<sup>4</sup> Includes \$7,656.13 of the appropriation for reclamation of arid lands, carried to the fiscal year 1884.

<sup>5</sup> Includes \$93,192.27 of the appropriation for Bureau of Animal Industry, and \$2,970.82 of the appropriation for quarantine stations, carried to the fiscal year 1886.

<sup>6</sup> For the fiscal year 1883 including the sum of \$8,000 appropriated for deficiencies in the appropriation for experiments in the manufacture of sugar for the fiscal years 1887 and 1888, of which \$7,927.50 was disbursed and \$72.50 remained unexpended.

*Statement of appropriations, disbursements, and unexpended balances for the Department of Agriculture, 1839-1897—Continued.*

RECAPITULATION—Continued.

Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.	Fiscal year.	Amount appropriated.	Amount disbursed.	Amount unexpended.
1889.....	1 <sup>1</sup> \$1,134,480.60	\$1,033,590.22	<sup>2</sup> \$100,890.38	1895.....	<sup>4</sup> \$2,506,915.00	\$2,021,030.38	\$485,884.62
1890.....	1 <sup>1</sup> 1,170,139.11	971,823.62	<sup>3</sup> 198,315.49	1896 <sup>5</sup> .....	2,363,750.00	1,985,174.04	648,575.96
1891.....	1 <sup>1</sup> 372,049.21	1,296,277.36	105,771.85	1897 <sup>6</sup> .....	2,448,532.00	2,146,044.23	302,487.77
1892.....	1 <sup>2</sup> 303,655.75	2,253,262.29	50,393.46	Total.....	<sup>6</sup> 26,915,968.26	<sup>7</sup> 24,123,585.10	<sup>8</sup> 2,792,607.31
1893.....	2,540,060.72	2,355,430.25	184,630.47				
1894.....	2,603,855.58	1,977,469.28	626,386.30				

<sup>1</sup> Including deficiency appropriation.

<sup>2</sup> Includes \$12,923.25 of the appropriation for botanical investigations, and \$58,364.76 of the appropriation for experiments in the manufacture of sugar, carried to the fiscal year 1890.

<sup>3</sup> Includes \$188,974.69 of the appropriation for Bureau of Animal Industry, carried to the fiscal year 1891.

<sup>4</sup> Includes \$7,891.94 for statutory salaries of the year 1894.

<sup>5</sup> For the years 1896 and 1897 the figures given represent payments made to close of fiscal year, the accounts for those years being still open at the date of this revision.

<sup>6</sup> This total is the amount actually appropriated for the various fiscal years, with the exception of \$37,604.70 appropriated July 13, 1868, to cover a number of expenditures made in previous years. It does not include an aggregate sum of \$369,344.48 reappropriated from the unexpended balances of several fiscal years. (See foregoing notes.)

<sup>7</sup> Does not include \$37,604.70 which was disbursed during several years, and covered by an appropriation of like amount, made July 13, 1868. (See note 5.)

<sup>8</sup> Does not include an aggregate sum of \$369,344.48 reappropriated from the unexpended balances of several fiscal years. (See foregoing notes.)

# INDEX.

	Page.
Accounts and Disbursements, Division, organization and work .....	36
Adams, President, note on introduction of rare plants and seeds .....	7
Agricultural colleges, law donating lands .....	47
for endowment .....	50
Society, United States, activity for establishment of Department..	9
Agriculture, board, early efforts for establishment .....	6, 7
British board, establishment .....	6
composition of society recommended by House of Representatives.	6
Department, appointment of early officials .....	10
bureaus, division, and offices .....	33-39
cost and value to the country .....	30-32
of exhibit at Columbian Exhibition .....	27
divisions under Commissioner Watts .....	13
law for change in rank .....	42
establishment .....	41
objects .....	41
organization and work .....	9-28
raised to first rank .....	20
recommendation as to new building .....	16
work as outlined by Commissioner Loring .....	16
early governmental aid .....	5-7
first appropriation by Congress .....	8
growth of work in Patent Office .....	8
notes on condition at beginning of Department work .....	30
Agrostology, Division, formation .....	26
organization and work .....	38
Alaska, attention to possibilities of agriculture .....	20
Alvord, H. E., chief of Dairy Division, note .....	27
American cattle, inspection in England .....	23
representatives abroad, work for agriculture .....	7
Animal diseases, investigation .....	15
Industry Bureau. ( <i>See</i> Bureau of Animal Industry.)	
Apiculture, study .....	19
Appropriations and disbursements, 1839 to 1897, summary of .....	67
for Department .....	53-68
savings under Secretary Morton .....	28
Arboretum on Department grounds, construction .....	30
Artesian wells, study of irrigation and underflow .....	24
Atlanta Exposition, additions to museum .....	29
Atwater, W. O., supervision of nutrition investigations .....	27
Bahia seedless oranges, introduction .....	18
Barbary sheep, note on introduction .....	7
Beet-sugar inquiry, suggestion by Commissioner Newton .....	11
Beets, note on analyses as to sugar producing .....	17
Berkley, Mass., memorial for board of agriculture .....	7

	Page.
Biological Survey, Division, organization and work .....	36
Bollman, Lewis, appointment as statistician .....	10
Botanical Garden, establishment .....	7
Botany, Division, note on organization .....	13
organization and work .....	35
Bread, inquiry as to profits and reduction of price .....	27
British board of agriculture, establishment .....	6
Browne, D. J., note on work for agriculture in Patent Office .....	9
Building for Department, recommendation of Commissioner Le Duc .....	16
Buildings and grounds, review of improvement .....	28-30
Bulbs, cuttings, and vines, distribution by Department .....	10
Bulletin, first issue of Department .....	10
Bureau of Animal Industry, extract from report on ticks in Texas fever .....	24
increase of appropriation for war on pleuro-pneu-	
monia .....	20
law for establishment .....	43
organization and work .....	33
origin .....	17
reorganization .....	23
work under Secretary Morton .....	27
Butter, counterfeit, discovery of difference in crystals .....	20
Capron, Commissioner, selection as adviser to Japanese agricultural commission .....	13
Capron, Horace, appointment; notes on life; term as Commissioner .....	12
Cattle, American, inspection in England .....	23
discovery of cause of Texas fever .....	24
improvement of transportation by sea .....	23
Centennial Exposition, note on timber exhibit .....	14
Cereals, increase in production .....	30
Chemistry, Division, note on analyses of beets for sugar .....	17
organization and work .....	34
Chinese hogs, note on introduction .....	7
Citrus fruit groves, introduction of parasites of scale insects .....	25
Civil service, encouragement by Secretary Morton .....	28
examination, note on animal-industry inspectors .....	27
Colman, Commissioner, appointment to be Secretary .....	21
Norman J., appointment as Commissioner; notes on life; work of term .....	18
suggestion of culture of medicinal plants .....	20
Columbian Exposition, note on cost of Department exhibit .....	27
Congress, authorization of publications on silk .....	7
first appropriation in aid of agriculture .....	8
Congressmen, change of attitude toward Department .....	21
Conservatories and grapery, construction .....	28
Consuls, American, work for agriculture .....	7
Contagion, note on value to farmer of prevention .....	31
Corn and wheat, increase of production in several decades .....	30
Corn meal, note on introduction into Europe .....	22
Cotton seed, distribution .....	10
Crop conditions, note on early publication .....	8
Crops, inception of monthly reports .....	11
suggestion as to introduction of new plants .....	20
Cuttings, bulbs, and vines, distribution by Department .....	10
Dabney, Dr. Chas. W., jr., Assistant Secretary .....	28
Dairy Division, note on establishment .....	27
Diffusion process, increase in yield of sugar .....	20
Disbursements and appropriations of Department in detail .....	53

	Page.
Dodge, Charles Richards, note on estimate of value of museum .....	14
J. R., note on work for Department .....	12
Eaton, William, introduction of Barbary sheep .....	7
Ellsworth, Henry L., aid to agricultural development .....	8
England, inspection of American cattle .....	23
Entomological Commission, transfer to Department of Agriculture .....	17
Entomology, Division, organization and work .....	35
Expenses of Department .....	53-68
Experimental farm, assignment of ground to Commissioner of Agriculture .....	10
recommendation of Commissioner Le Duc .....	16
trial of cereals and other crops .....	11
garden, transformation into arboretum .....	30
Experiment Station Record, recommendation .....	19
stations, law directing inspection by Department .....	26
for establishment .....	49
Office, establishment .....	19
organization and work .....	37
Farmers' Bulletins, first special appropriation .....	26
recommendation by Secretary Rusk; popularity .....	22
Congress, note on work for Department .....	21
Fiber investigations, Office, organization and work .....	37
Fish, suggestions leading to establishment of Commission .....	12
Floods and storms, suggestion for observation and prediction .....	11
Foreign markets, change in method of inquiry .....	27
investigation by Secretary Rusk .....	22
section, organization and work .....	38
Forestry Division, discovery as to turpentine and lumber .....	28
organization and work .....	36
investigation, appropriation .....	14
Franklin (Benjamin), promotion of agriculture .....	5
French hogs, note on introduction .....	7
Garden, propagating, incorporation in Department of Agriculture .....	9
Gardens and Grounds (Division), organization and work .....	34
Georgia, early aid to agriculture .....	5
Gibbons, Francis, jr., note on contract for Department building .....	28
Glover Townend, appointment as entomologist .....	10
Grange, National, resolutions as to Department .....	20
Grasses, collection from West .....	12
Grasshoppers, note on ravages in West .....	15
Green, Seth, request for attention to fish .....	12
Harrington, Mark W., appointment as chief of Weather Bureau .....	24
Hatch act .....	47-49
Representative, plan for experiment stations .....	19
Henry, Joseph, suggestion for appointment of botanist .....	13
Herbarium, additions .....	25
Hessian fly, note on introduction of parasites .....	25
Highways, public, study begun .....	19
Hill, George William, appointment in charge of publications of Department .....	22
Hogs, note on introduction of foreign breeds .....	7
Holloway, David P., note on argument for Department of Agriculture .....	9
Hough, Franklin B., special agent in charge of forestry .....	14
Illustrations, Division, reorganization .....	26
Indigo, early encouragement of cultivation .....	5
Inspectors for Bureau of Animal Industry, requirements .....	27
Insurance rates on cattle in transit, reduction .....	23
Interior Department, incorporation of Patent Office with agricultural work .....	8

	Page.
Irrigation, appropriation for experiments .....	16
close of inquiry .....	27
liberal appropriation for investigations .....	24
note on report .....	19
James I (of England), encouragement of silk growing .....	5
Japan, selection of Commissioner Capron as adviser .....	13
Jarvis, William, note on share in introduction of Spanish sheep .....	7
Jute, suggestion of cultivation .....	14
Ladybird, note on introduction as enemy of scale insect .....	25
Lands for agricultural colleges, law for donation .....	47
Law creating the Bureau of Animal Industry .....	43
Department of Agriculture .....	41
donating lands for agricultural colleges .....	47
establishing agricultural experiment stations .....	49
for endowment of agricultural colleges .....	50
transfer of Weather Bureau to Department .....	45
Le Due, Commissioner, recommendation as to Department building .....	16
William G., appointment, notes on life and work of term .....	15
Lee, Dr. Daniel, note on appointment for agricultural work in Patent Office .....	9
Legislation and expenses, review .....	41-68
bill for control of transportation of cattle by sea .....	23
note on law for inspection of experiment stations .....	26
Library, Department, first appropriation .....	12
organization and work .....	39
Lincoln, Robert, aid on inspection of cattle in England .....	23
Live-forever, note on destruction by parasitic fungus .....	25
Longleaf pine, discovery as to value .....	28
Loring, Dr. (Commissioner), remark as to work of Division of Statistics .....	18
Loring, Dr. George B., appointment as Commissioner; notes on life; work of term .....	16
McMurtrie, Professor, in charge of Paris exhibit of 1869 .....	16
Maize oil, note on early use .....	8
Markets, inquiry as to prospective demand abroad for grain and meats .....	18
Massachusetts, early governmental aid to agriculture .....	5
Medicinal plants, suggestion as to culture, with list .....	20
Merino sheep, note on introduction .....	7
Mexican Observatory, note on exchange of data with Weather Bureau .....	27
Microscopists, recognition of discovery as to butter crystals .....	20
Microscopy, Division, establishment .....	14
Moffat, E. J., appointment as special agent in foreign markets .....	18
Morrill, Justin S., note on work for agricultural legislation .....	47
Morrill law .....	50
Morton, Julius Sterling, appointment as secretary; notes on life; work of administration .....	25
Secretary, encouragement of civil service and economy .....	28
Murphy, Charles J., introduction of corn meal in Europe .....	22
Museum, gifts from foreign governments .....	14
origin and development .....	39
Newton, Commissioner, suggestions for weather service and beet sugar inquiry .....	11
sunstroke and death .....	11
Isaac, appointment; notes on life; work of term .....	9
jr., appointment in charge of experimental farm .....	11
Nutrition investigations, special appropriation .....	27
Objects of Department stated in law .....	41
Oranges, Bahia seedless, introduction .....	18
Ornithology and Mammalogy, Division, note on establishment .....	19
Paris Exposition, appropriation and exhibit of Department .....	16

	Page.
Parliament aid to agriculture in America .....	5
Parry, C. C., appointment as Botanist .....	13
Patent Office, growth of work for agriculture .....	8
list of employees on agricultural roll in 1857.....	9
Patents, Commissioners, list from early date .....	8
Pickering, Timothy, note on share in introduction of Barbary sheep.....	7
Pine timber, value after boxing for turpentine .....	32
Plants, distribution from propagating gardens .....	10, 18
note on value of study of diseases.....	31
Pleuro-pneumonia, beginning of crusade.....	17
eradication announced.....	23
war.....	20
Plimsoll, Mr., note on attitude toward transportation of cattle.....	23
Pomology, Division, note on establishment .....	19
organization and work .....	36
Pork, American, withdrawal of prohibition by Germany.....	23
Publications, Division, organization and work.....	37
of agricultural statistics, etc .....	8
Department, growth .....	26
plans of Secretary Rusk .....	22
recommendation for sale of annual report.....	14
Quarantine of animals, transfer to Department of Agriculture.....	17
Rain making, note on experiments .....	25
Ramie, suggestion of cultivation.....	14
<i>Rappahannock</i> , note on savings by Weather Bureau .....	32
Read, Senator of South Carolina, response to Washington's suggestion for board of agriculture .....	6
Representatives, House, action on Washington's suggestion for board of agriculture	6
Road Inquiry, Office, note on establishment.....	27
organization and work .....	38
Rush, Richard, note on manual on silk culture and manufacture .....	7
Rusk, Jeremiah M., appointment as Secretary; notes on life; work of adminis- tration.....	21
Secretary, estimate of value of Department.....	32
Salmon, D. E., establishment of veterinary experiment station.....	17
Saunders, William, appointment in Department .....	10
improvement of Department grounds .....	30
Scale insects, note on importation of parasite enemies .....	25
Seed, amount distributed in 1863.....	10
Seedless oranges, Bahia, introduction .....	18
Seeds and plants, note on early distribution .....	7
system of exchange with foreign countries .....	12
change in method of distribution.....	28
opposition by Secretary Morton to distribution .....	28
suggestion of Commissioner Le Duc as to distribution .....	16
Senate, reply to Washington's suggestion for board of agriculture.....	6
Sheep, introduction of Barbary and Spanish breeds.....	7
raising, early governmental encouragement .....	5
Signal Service of Army, note on appropriation for weather reports .....	14
Silk culture, renewal of inquiry.....	17
early encouragement to growing.....	5
note on manual by Richard Rush .....	7
reeling, experiments discontinued.....	25
study of question of reeling .....	19
Silkworms, note on publication of Count Von Haggi's treatise.....	7

	Page.
Sinclair, Sir John, note on friendship for Washington .....	6
Skinner, F. G., first collector of agricultural statistics for Patent Office .....	9
Smithsonian, botanical collection put in charge of Department .....	13
Soils, Division, note on formation .....	26
organization and work .....	38
Sorghum, close of investigations .....	17
experiments .....	16
South Carolina, early aid to agriculture .....	5
Spinner, U. S. Treasurer, request for attention to fish .....	12
Statistics, Division, condition under Commissioner Watts .....	15
organization and work .....	35
of three sections .....	26
reorganization and increase of work .....	17
value of information to farmers .....	31
Stokes, John W., time as Acting Commissioner .....	12
Storms and floods, suggestion for observation and prediction .....	11
Sugar, increase of production by diffusion process .....	20
note on early manufacture from Indian corn .....	8
value of work by Division of Chemistry .....	31
production, distribution of sugar-beet seed .....	25
Taylor, Dr., discovery of differences in crystals of lard, butter, etc. ....	20
Thomas, appointment as Microscopist .....	14
Tea culture, investigation, lease of farm in South Carolina .....	16
farm in South Carolina, note on report of William Saunders .....	17
Texas cattle fever, note on investigation .....	13
fever in cattle, discovery of cause .....	24
Thompson, George F., note on preparation of indexes .....	15
Ticks, investigation as cause of Texas fever .....	24
Tobacco, distribution of seed .....	10, 18
Transportation rates, publication in monthly reports .....	18
Tuberculous diseases, note on protection of human life .....	27
Vegetable pathology, section, note on establishment .....	19
Physiology and Pathology, Division, organization and work .....	36
Vines, bulbs and cuttings, distribution .....	10
Virginia, early aid to agriculture .....	5
War Department Signal Service work, transfer to Department of Agriculture ..	24
transfer of weather reporting .....	14
Washington (President), promotion of governmental aid to agriculture .....	5, 6
Watts, Commissioner, objection to character of weather reports .....	14
Frederick, appointment, term, and sketch of life .....	13
Weather Bureau, establishment .....	24
extension of work .....	27
grounds and building, note on cost .....	29
law for transfer to Department of Agriculture .....	45
organization and duties .....	33
savings by warnings .....	32
reporting transferred to War Department .....	14
service, suggestion by Commissioner Newton .....	11
Wetherill, C. M., appointment as chemist .....	10
Wheat and corn, increase of production in several decades .....	30
tests of varieties on experimental farm .....	11
Willits, Edwin, appointment as Assistant Secretary .....	22
Assistant Secretary, in charge of Columbian exhibit .....	27
Wilson, James, appointment as Secretary .....	28





